THE BUILDER

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MARNE AND AISNE.

SIR THOMAS JACKSON'S recent letter to the *Times* recalling the pathetic charm of a recent summer holiday in North-Western France, expresses the special interest which architects have in the present seat of the war in Western Europe. But however deep the emotion which the bombardment of notoriously precious architectural cities like Reims, Soissons, Arras, and Antwerp creates amongst us of the present generation, and however regretful we may be that this evil has come to pass in our day, our grief and shame for our art must have a paler sadness than that which would have fallen over the architectural heavens of Sir Thomas Jackson's early friends and contemporaries, George Edmund Street and William Burges.

No one can recall Street's Royal Academy lectures upon the architecture of the French cathedrals, more eloquent and forceful with conviction than seems compatible with academic pronouncements to-day, and not realise that the outrage of architecture by modern warfare would have seemed even greater five-and-thirty years ago than now. Reims, both Cathedral and Abbey of St. Remi, the latter as precious as an historical monument as the former is splendid as a work of art; Noyon, in a way introduced to us by the drawings of W. Eden Nesfield, and fascinating by the severe power of its façade and the completeness of its conventual group; Soissons, with not only a charming cathedral but the grand spires of the ruined Abbey of St. Jean des Vignes; Laon, upon its cliff, with its landmark towers and fabulous sentinels of oxen gazing out of the pinnacles upon the battlefield; and Chalons-sur-Marne, Cathedral and Church of Notre-Dame alike, the latter having twin early spires of lead beloved by Burges for their original decorations of enamelled tin, are all landmarks in these provinces of the Aisne and Marne which were at once the idols and the ideal of masters of the Gothic Revival in England half a century ago.

At a previous stage of the Revival Gilbert Scott and his school, worshipping at Early English fountains, had found that patriotism was compatible with their architectural enthusiasms, and were recovered from the first glamour of Ruskin's Venetian lamplight, reflected for us in the St. Pancras Hotel. Intelligent study deepened appreciation of the completeness of our island architecture for the purposes, at all events, of our national religious buildings, and the purity of the English style of the thirteenth century was then an established standard highly gratifying to the cathedral clergy and to provincial archæological societies.

The chariot moved swiftly in those days; a fire had been kindled and spirits loosed which were not to be denied the delights of adventure. The new Renaissance was as energetic as its despised prototype, and the patient draughtsmen architects and keen lightning sketchers went forth to awake the past of Continental as well as of Insular mediævalism. Pugin had long before roamed at large, sketching as much in Germany as France, winnowing out the debased Renaissance work, and seeing Gothic charm in very nearly everything that was piquant with crockets and pinnacles. But the later draughtsmen were more particular; they had perceived the special glory of the period of an acme, and the intenser beauty of the thirteenth century alone secured their full admiration and study.

The architecture of Puy-le-Dôme had already attracted Street, the Cambridge amateur Edmund Sharpe was busy with La Charente, and Normandy, known for its picturesqueness, was becoming a sphere of more thorough work, deeply influencing in the fullness of time the churches of John Loughborough Pearson. The glories of France could not be denied their predominant share in the firmament of Gothic art, and they very rapidly infected the minds of architects busy with the then abundant church building and restoration, modifying their concentration upon the national or patriotic aspect of the Revival, but strengthening the conviction that Gothic was an all-sufficient prescription for all truthful and beautiful construction.

About this epoch, for the revolutions of English architecture have been like those of a minor universe, the printing art, as in the major Renaissance, developed photo-lithography, and first in the late sixties and early seventies placed an abundant weekly supply of illustrations of architecture at the disposal of the artistic world. The sketchers and measurers of ancient buildings rapidly made abundant use of the new direct and economical method of reproduction. The architectural journals performed for a microscopic expense the services of expensive books to the designer. The supply of material and opportunity coincided, and architects lived cheaply upon the plentiful stream of published drawings and sketches. The study was superficial, the attractiveness of picturesque subjects and masterly sketchmanship was great, and the effects of photo-lithography can be discerned in many solid buildings, on which one could moralise and improve the occasion.

It would not be possible or just to identify too closely the immediate effect of the architecture of the seat of war in France upon the designs of Street and Burges and what we may properly call their school at the period of their greatest influence. The epoch between the competition for the New Law Courts and that for St. Mary's Cathedral, Edinburgh, was their hey-day, as the designs of both men in these competitions testify. And it is at this period that we may venture to ask any who know the peculiar charm of the mediæval monuments of the Aisne and Marne districts to recognise and discern the enlargement of vision which it brought to the work of the English Gothic Revival of these masters.

We trace in Street's glowing descriptions of Reims and Burges' marvellous realisation of the wealth of freshness and purity of style which characterises the details, sculpture, and the contents of the cathedral treasuries of North-West France clear evidences that the goal towards which they would endeavour to bring their modern art, limited perhaps in its scope, but intense and clear in its illumination, is that which now lies within the relentless and desperate conditions of debasement and destruction.

Our calamity increases as we recall this past enthusiasm; the monuments fall, as the ideals change, the ruins and disfigurement remain of both; but before the sky was darkened some reflection of their earlier power was granted to the keen eyes and masterly hands of these English architects of the Gothic Renaissance.

It may perhaps be questioned whether the appreciation of the peculiar forcefulness of French thirteenth-century Gothic art has been as great in its own land as in ours. The contemporary architects of the Revival in France spared no pains upon these buildings both in restoration or reproduction. Ruprich-Robert at Reims and at Laon carried out extensive restoration and reparation, and Viollet-le-duc, in the Aisne district at Pierrefords, which is within the forest of Compiègne, and which we hear has been sacked by mistake, recreated a Gothic château with a wealth of research and gorgeousness of result that competes with Burges' more distinctive work at Cardiff Castle. But in restoration or design the work of the revivalist architects in France appears, to us English, at all events, lacking in that sympathetic power which almost

destroyed the usefulness of modern Gothic art in England by sheer excess of vitality. A modern point of view, a hard thoroughness of certainty, and a satisfying completeness of result make the French revived Gothic to reflect that academic thoroughness of professional training which we instinctively recognise as of the École rather than of the individual. The English architects sucked honey out of the combs which their *confrères* have re-edified and refilled with their own characteristic spirit.

But it would be irreverent to pass over the sufferings of French architectural art in this district without recording the charm with which Viollet-le-duc invested the wondrous fortress of Coucy le Château, pitched with true military instinct in the heart of the battlefield of the Aisne. Here might be visualised all the fascination of that remarkable article "Siege" in his "Dictionnaire Raisonné," with the Macicoulis for the Hourds around the vast circular keep, with its beautifully-vaulted chambers above each other, and the completed *enciente*. Here the restorer's fancy and labour were confined to the scholarly inductions of the dictionary, and the result, together with Pierrefords, well illustrate the imaginative force of the mediæval era upon the modern architect. No architect has done for English mediæval fortification what Viollet-le-duc did for Coucy and "La Siege." The charm of the little scenes, the archers in action, the protective Hourd, the assault by sling and fire, the practical utility and the artistic charm, all combine realistically in the illustrations.

This ideal restoration of a passage in the life of a bygone age made us once leap with enthusiasm; the art was as triumphant in war in the castle as in worship in the cathedral. The monuments lived, and we lamented the decadence of centuries in our inability to attain in practical modern life such a combination of active power with art expression.

We have our answer, however, in the long-drawn-out scene of the Battle of the Aisne—the dread practicality of warfare is the same, the terrain induces the conflict. The Cathedral of Laon, which centrally marks the cliff range of the battle line, is a landmark of time which, whatever emotion its beauty inspires, may, like Reims, become the target of an imagined military necessity, and Noyon, similarly from its position, may suffer the fate of Soissons. The destructive war machine remorselessly seizes upon configurations of landscape, which, alas, have architectural value, and teaches us afresh that necessity knows no law, and that among the sorrows to which man is as certainly born as that the sparks fly upward are counted those which render the glories of architecture but temporary.

It is certain that, though the danger to beautiful buildings on a battlefield can scarcely be exaggerated, the damage in the excitement of war correspondence may be too highly coloured.

The destruction of Reims Cathedral is correct only as a description of the fate of its fine leaden roofs with their cresting and the beautiful and unique *flèche* pitched upon the apex of the apse. The structural damage generally, owing to the unexpected strength of the huge vault, is limited to that caused by the explosive battering of shell fire mainly upon the northern portion of the west front, where the great rose window and much of the wonderful early fourteenth-century sculpture has been brutally defaced. The interior has suffered greatly from fire, which has destroyed the fittings and greatly injured the unique sculptures on the inner face of the west wall up which the flames licked. These tiers of niched figures on the piers at the sides of and on the jambs and lintel, and over the inner arch of the great door, are carved in relief on the solid masonry, and form one of the special features of the internal design which attract the architectural sketcher, overawed by the vast scale from attempting any more general internal views of the cathedral. The earlier sculptures of the porches of the north transept and the marvellous galaxy of saints across the springing of the gable, certainly one of the finest triumphs of Gothic sculpture in point of dignity and scale, have, we hope, escaped without much hurt.

When the looked-for day of peaceful visitation again recurs those who have known and loved the district will return to note with mingled satisfaction and lamentation what has been saved and what lost, and architectural fathers will picture on the spot to their sons what they once saw when the fever of the Gothic Revival sent them as enthusiastic youths to the lovely and now historic battlefield. We shall comfort our hearts and anticipate that a new sympathy and affection will then be rekindled for the priceless heritage which architecture holds from the Middle Ages on these blood-stained banks of the Marne and Aisne.

NOTES.

Tram v. Market.

THE London County Council's proposal to connect the tramway "dead-ends" at Blackfriars Bridge and Waterloo-road by a line through New-cut is meeting with determined local opposition, as it involves the destruction of the New-cut Market, the ruin of the traders, and great inconvenience to the poor inhabitants of this over-populated district. New-cut being one of the principal market streets of South London, a good deal of sympathy may naturally be felt with the petition of protest, signed by over 6,000 people, which has been presented to the Borough Council. If, however, it is a question between the interests of this district and the efficient working of two of the principal tram routes into the central area of London, the less must give way to the greater. But is it necessary that these interests should conflict? Is there no other way of connecting these tram routes than by the New-cut? It seems a great pity that some compromise cannot be arrived at which would preserve the market street. Owing to the piecemeal way in which we are in the habit of dealing with our London improvements, it is quite possible that this question has been dealt with simply as a tram or traffic improvement without any thought of its relation to the equally important question of the distribution of the food supply of London. At any rate, there seems an opportunity here for a fine improvement scheme linking up the trams and providing even better market accommodation than exists at present. But even then we still await the general scheme for the whole of the south of London to which such improvement could be properly related.

The First Atelier.

THE First Atelier held an informal meeting on October 7, at which Lord Saye and Sele presented the Atelier medal to Mr. L. H. Bucknell, making one of his customary humorous speeches, which was greatly appreciated by the audience. Afterwards the Patron, Mr. Davis, explained the reasons which had guided the assessors in making their awards on the various *projets* submitted in competition for the subjects set for students. Many of the designs on the walls were excellent, the chief competition being for an entrance screen and gates for a royal palace. Other subjects comprised an orangery and a fire station, while a large collection of sketches made by Mr. Davis during his student days added to the interest of the exhibition. Mr. Davis's explanations of the assessors' reasons for making their awards made us feel what advantages there are in the jury system of assessing, and if it could be extended to actual competitions we feel that architects would be the gainers. Competent men ought not to object to giving adequate and convincing reasons for the results they have arrived at, and any objection to do so rather suggests want of satisfactory reasons than dignity. The papal attitude which is favoured by many assessors is, we think, an anachronism and a technical mistake. We believe that the Atelier has been organised on sound lines, and that the enthusiasm and good-fellowship inspired will react on our younger architects and further the cause of architecture.

Our Correspondence Columns.

ONE of the objects of a technical journal is to serve as a means of communication between those who want to obtain information on special points and those who are able to impart it. We do not think that this is always fully appreciated by our readers, and therefore call attention to the point. Whenever correspondents ask questions which we can answer satisfactorily we shall make a point of doing so, and when such questions can best be answered by some of our readers we hope they will send us a letter or note on the subject, for if they do so they will help those of their own profession or craft, and we are willing at any time to put ourselves to trouble in order to render the *Builder* of service to its readers. Many mistakes in building have been made for the want of a little experience in some direction or another which it is easy to obtain through the medium of a journal, which thus becomes a useful clearing house. Another point we should like to call attention to is that our columns are always open for letters containing criticism or suggestions as to the articles and other matters which appear in our columns. The province of a technical journal is to give what is most required by the bulk of its readers, and it is possible that we may sometimes form erroneous ideas of what this consists of unless we have the useful correctives of criticisms which only our readers are in a position to make. We shall regard all such criticisms as indicating a friendly interest in the *Builder*, and shall treat them as public or private communications as the writer may prefer.

LETTER FROM AN ENGLISH ARTIST SKETCHING IN NORMANDY.—I.

THE following article was written by Mr. Hanslip Fletcher before the outbreak of the present war:—

The traveller bound for the Antipodes must indeed have poignant impressions, when one who is merely contemplating a brief absence is stirred with emotion by the familiar landmarks of the homeland. England, viewed from the windows of the flying train this autumn morning, is eloquent of buoyant life and activity—motors straining at the leash on the Brooklands track; Fleet, with its sheet of water in the dusty plain, and Aldershot yonder in the sultry heat; Winchester, St. Cross, and the Southampton slums. The boat express glides to the landing-stage where the *New York*, the ferry-boat, is moored, which will land me at Cherbourg on her way to America. The pathetic farewells are not for me—I efface myself. When these folk are still cabined and the good ship passing the Battery Point at New York Harbour I shall be deep in my quest in Normandy.

Preparing to land at Cherbourg and conspicuous with rücksack and heavily-laden bicycle; I am accosted by one who pronounces himself to be a lover of the arts with the inquiry, "Where are you going?" "I go," I reply, "to Northern France to feast my fill of old towns, to gaze on jewelled spires and towers, to draw and etch them on pieces of copper." The lover of the arts speaks of Mortain, the Switzerland of Normandy, and suggests that there I may find him holiday-making with his family. He advises me to cease talking and attend to the glowering Customs officer, who was at length fortunately placated, leaving me free to enter France. But not alone, for another traveller, slightly lame, has attached himself to me. He was due in Paris, but it was late. Could he bide at Cherbourg and see the seaport all alive with sailors on leave, for some of the French fleet lay at anchor? He trusts himself to me, and follows, limping round many a corner, until I halt gazing at the elegant "église flamboyante de la Sainte-Trinité." My lame acquaintance hurries up, waxing impatient and wanting to find food and shelter against the approach of night. But when we are in possession of a suite of rooms, bedizened with Empire clocks, mirrors, and panelling, and have dined, I am rewarded for having gone on to Cherbourg instead of stopping at the first place outside. After the meal we saunter through the streets; the shops and *cafés*, open to the gaze of passers-by, are gay with life. Here are sailors playing cards, some supping, while one stands on a chair and sings to the company, the crowd in the roadway loudly applauding. To us it is so unusual as to be like a stage play. We enter a wide space and sit outside a *café* while the band plays.

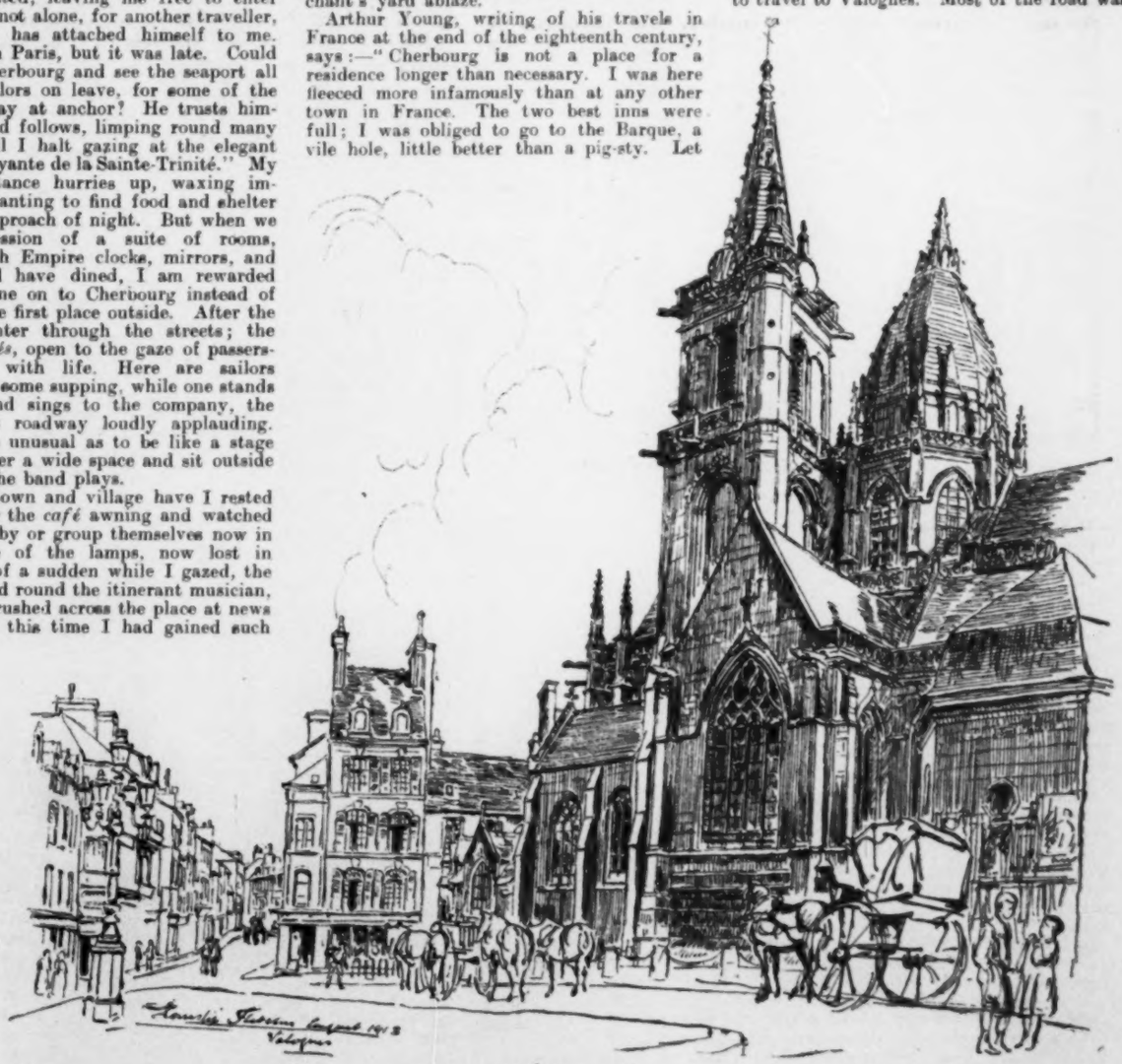
In many a town and village have I rested at night under the *café* awning and watched the figures go by or group themselves now in the full glare of the lamps, now lost in shadow. All of a sudden while I gazed, the crowd, gathered round the itinerant musician, scattered and rushed across the place at news of a fire. By this time I had gained such

Cherbourg: L'Église de la Trinité.

Gallic impetuosity that, nearly overturning my table, I darted off till checked by the breathless but smiling *garçon*, "Monsieur, l'addition, s'y vous plait." We ran in increasing numbers a mile or more beyond the station, and there was a sight worth the running, columned smoke and myriad sparks shooting into the darkness—a goods merchant's yard ablaze.

Arthur Young, writing of his travels in France at the end of the eighteenth century, says:—"Cherbourg is not a place for a residence longer than necessary. I was here fleeced more infamously than at any other town in France. The two best inns were full; I was obliged to go to the Barque, a vile hole, little better than a pig-sty. Let no one go to Cherbourg without making a bargain for everything he has, even to the straw and stable, pepper, salt, and table-cloth."

But matters have improved since his time. Even the tyro is free from such precautions in these days of cosmopolitan intercourse. I tarried no longer at Cherbourg, for I wanted to travel to Valognes. Most of the road was



Valognes: L'Église.

Coutances: La Cathédrale.

a stiff climb from the coast. I was glad to make a halt there and draw the church, so celebrated for its Gothic dome.

A glittering morning saw me on another stage of my journey, swinging along to Coutances. *En route* L'Hospice Sainte-Sauveur-le-Vicomte detained me. I peeped into the kitchen and noted the vaulted roof, supported by a central column. There was a Sister prodding into steaming cooking pots, while she gave to a poor idiot child, muttering to herself in the window seat, some simple errand suited to her capacity. The little wizened Sister of great age, sitting scraping vegetables, seemed almost alert and vivacious in contrast to the poor child. I walked across the courtyard, and, looking through a window, saw a woman at a long table sewing a rough garment, surrounded by close-cropped youngsters handling thumbworn books. Contriving to keep them undisturbed in their natural unconscious attitudes, I sketched them. Thus I had become acquainted with the orphans, for at a given signal they all crowded round and the sketch was passed from hand to hand.

Coutances weaves its spell on the traveller from afar. It is a city set on a hill. The boulevards on the encircling ramparts are the setting of this jewel in the green champaign. The road down the hill from the cathedral height affords a picture of roofs, towers, and spires against the sky, imposing enough at close quarters, but as one further descends and expects the vision to vanish, lo, a fresh picture appears, more charming than before, and therefore the people of this city perform a backward glide down this steep. It would be a pity to miss the travelling circus advertised on the hoardings. At last, after great scrambling and noise at the pay-boxes, I entered the vast tents under the trees of the boulevards.

There is almost a stampede in the bewildering shadows and glare of the improvised lights hanging on the trees. Each bench is filled with a contented crowd. The circus riding, Chinese jugglers in native costume, eating fire and hurling knives, with the mirthful fooling of the clowns, were respectfully applauded. A child next me would stand on tiptoe, rising from his seat, though every time gruffly rebuked by an old man behind, whose view was interrupted. He was jealous of missing his share of "the sights that dazzle." Small wonder the lions refuse to eat the tough lion-tamer, though he tickles them with his whip, but I shuddered as the pretty lady walked the tight rope stretched over the open cage. The savage beasts look up admiringly, and assuredly would have swallowed up such a dainty morsel the moment she had fallen.

Don't forget to ask for a bath at Coutances. They direct you down the steep out of the city into a flower-garden, which you are left admiring while your bath is getting ready. You disappear, and in due course emerge again amongst the bright flowers a worthy creature.

At Coutances I am told to look out on my journey for the ruins of L'Abbaye Hambye, and I arrive in the heat of the day at the inn there, which is blocked around with market carts.

In the cool interior I sit down to *déjeuner* with a prosperous-looking man in the prime of life and another, older, rougher, and more weather-beaten, who was the more amusing to talk to. He asked if I knew the cider liqueur of the district, which was brought us by a handsome youth, son of the landlord, who was quick in his movements and obedient to his father's commands. With his open countenance, fair hair, and graceful movements, he appeared a young god ministering nectar to mortals.

After sketching the kitchen, which proved the hub of the village, with the door slamming at the arrival of other travellers, I proceeded along the road to find the ruin, and before long discovered the remains of the choir of the abbey, rising into the azure above the farm lands, all peaceful but for the barking of a dog, and even this black beast at last composed himself to sleep.

But, alas, a lively party enter! They insist on talk and looking at my sketches and drinking the farmer's cider in the orchard. I give up drawing and explore the whole place with this mad crew, bursting into

Coutances.

Coutances St. Pierre.

ejaculations of rapture at the sunbeams lighting up the black old carvings of the interior dwelling, where children are crawling about the stone floor.

I point out to the lively party the huge cider vats, which they all appreciate, and after much bowing and handshaking take my leave and cycle to Percy for quarters for the night.

(To be concluded in our next issue.)

IMPROVEMENTS, SCARBOROUGH.

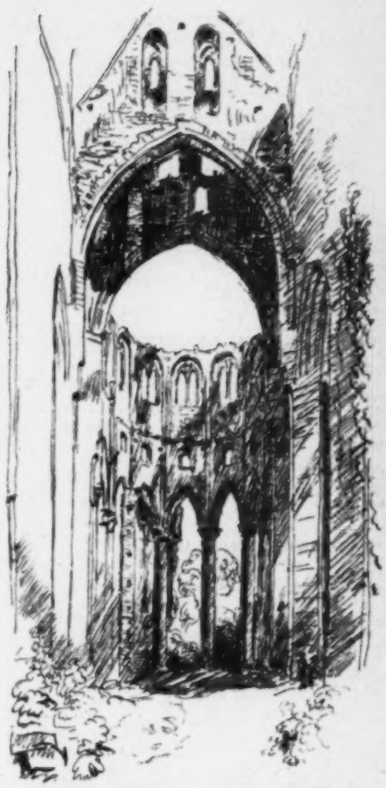
The Local Government Board have sanctioned the borrowing of £16,700 for improvements on the South Cliff at Scarborough.

Coutances.

MEMBERS OF THE A.A. SERVING WITH THE FORCES.

INCLUDED in this list are a number of members of the architectural profession who have enlisted through the A.A. War Service Bureau :—

Webb, Maurice E. (President), Royal Engineers
Adams, Alfred, Royal Army Medical Corps.
Addey, F. A., Royal Engineers.
Aldous, C. F., H.A.C.
Archer, H. D., H.A.C.
Barber, R. A., Engineer Units, Royal Naval Division.
Battiscombe, H., Artists.
Battle, A. N., Universities and Public Schools Corps.
Baynes, E. S. A., Inns of Court O.T.C.
Benslyn, W. T., Royal Engineers.
Binning, Alan, the London Scottish.
Blackford, A. G., Artists.
Blampied, R. C., 2nd Lieut., Royal Militia of Jersey.
Bonser, K. J., the Queen's, 24th Batt. County of London.
Booth, G. B., Inns of Court O.T.C.
Botting, M., Royal Engineers.
Bowden, E. E., Universities and Public Schools Corps.
Brace, A. G., Royal Engineers.
Braine, R., the London Scottish.
Bright, T. L., Civil Service Rifles.
Brittan, H. W., Commission.
Brooks, C. J., Lieut., 1st City of London Fusiliers.
Bunce, E., Royal Engineers.
Burford, J., Artists.
Burton, L., H.A.C.
Butler, A. S. G., H.A.C.
Butt, C. F., Artists.
Butt, P., Royal Engineers.
Callender, G. W., Artists.
Capon, G., Artists.
Cart de Lafontaine, P., Commission.
Castleman, P. O., Royal Engineers.
Cheriton, W. G. L., Artists.
Ching, W. T., King Edward's Horse.
Clark, G. G., 2nd Lieut., Durham R.G.A. (T.).
Clark, R. D., 7th Royal Fusiliers.
Clark, W. L., Artists.
Collins, O. H., Universities and Public Schools Corps.
Cooksey, R. A., 2nd Lieut., Kent (Fortress) Royal Engineers.
Cooper, A., Royal Engineers.
Corlette, H. C., Commission.
Cox, N. W. T., Royal Engineers.
Crowe, J. J., 25th Cyclist Batt. London Regiment.
Cruickshank, D. E., Public School Batt. Royal Fusiliers.
Curd, P. J., Royal Naval Volunteer Reserve.
Davidge, H. E. J., Royal Engineers.
Davis, H. S., Royal Engineers.
Dawson, D. J. S., 1st Public School Batt. Royal Fusiliers.
Day, N. F. C., Artists.
Detmold, F. G., Universities and Public Schools Corps.
Dickson, H. J. H., Artists.
Douglass, H. A., Capt. C.L.B. Batt. King's Royal Rifle Corps.



L'Abbaye Hambye. *(See page 354.)*

Dowsett, T. W., H.A.C.
Eade A., Universities and Public Schools Corps.
Faulkner, H., Royal Engineers
Felkin, S. D., Artists.
Ford, P., Artists.
Fortescue, G. A., Inns of Court O.T.C.
Francis, E. C., Artists.
Frank, F. D., Royal Engineers.
Glover, A., the London Scottish.
Gold, H. A., Queen's Own 4th Royal West Kent Regiment.
Gomme, L. J., 11th County of London Batt. (Finsbury Rifles).
Gordon, D. G., Universities and Public Schools Corps.
Gossling, H. F., Artists.
Gotch, L. M., Royal Engineers.
Graeme, A. V. S., Comm. 4th Seaforth Highlanders.
Grant, T. F. W., Royal Engineers.
Gresswell, H., Artists.
Grice, W. S., Artists.
Hake, G. D. Gordon 2nd King Edward's Horse.
Hall, Stanley A., 25th County of London Cyclist Batt.
Hampton, W. O., Royal Engineers.
Harris, A. L., Royal Engineers.
Hart G. W., Royal Engineers.
Hatchard-Smith, W. H., Artists.
Heathcote, C. H., Capt. Sherwood Foresters.
Hendry, H. D., Artists.
Hett, A. J., Royal Engineers.
Hett, L. Keir, Royal Engineers.
Higgs H. J., Royal Engineers.
Hill, Joseph, H.A.C.
Hillyer, W. H., 2nd Lieut. Royal Engineers.
Hitch, J. O. B., 2nd Batt. Artists.
Holmes, B. Scott 2nd Lieut. C.L.B. Batt. King's Royal Rifle Corps.
Holt, G. H. G., 2nd London Scottish.
Hooper, A. F., Lieut. Foreign Service Batt. Royal West Kent Regiment.
Hopewell, J. H., Commission.
Horsley, R. C., London Irish.
Hosking, F. S., Royal Engineers.
Hughes, B., Artists.
Humphrey, G. J., Mechanical Transport, H.C.D.
Impey, L., 7th Royal Fusiliers.
Jacob, J. H., H.A.C.
Jay, H., Royal Engineers.
Jeffrey, H. M., Royal Engineers.
Jezzard, R. J., R.G.A., 4th Highland Mountain Brigade.
Jones, A. L., Inns of Court O.T.C.
Jones, L. F., Commission.
Jones, O. Campbell, H.A.C.
Jones, R. S., Artists.
Keesey, W. M., Royal Engineers.

Lamb, H. A. J., Royal Engineers.
Lloyd, W. H., Universities and Public Schools Corps.
Lodge, A. L., Inns of Court O.T.C.
Lowcock, C., Royal Field Artillery.
Lowry, A., 6th Batt. T. Black Watch, F.S.
Macgregor, J., Artists.
Mackenzie, A. G. R., London Scottish, B.E.F.
Mackenzie, G., 2nd Lieut. Seaforth Highlanders.
Maddock, R. H., Artists.
Manlove, J. E. D., Commission.
Martin, T. A., London Scottish, B.E.F.
Mathews, J. B., Royal Engineers.
Matthews, Bernard F., Commission, 1st Wessex Brigade, R.F.A.
Maule, H. P. G., H.A.C. (Colour-Sergt.-Major, F.S. Batt.).
Maxwell, A. E., Royal Engineers
Meikle, J A., Universities and Public Schools Corps.
Methuen, Hon. A. P., Commission.
Milne, —, Inns of Court O.T.C.
Mills, H. E., Civil Service Rifles.
Moberly, A. H., Commission.
Moore, H. E., Lieut., Royal Engineers (Cork).
Mullins, G. T., Artists.
Murgatroyd, J. L., 2nd Lieut., Royal Anglesey Royal Engineers (Special Reserve).
Murrell, H. F., Artists.
Newton, F. G., Artists.
Newton, W. G., Artists.
Nightingale, F. B., Artists.
Norris, C., 7th Royal Fusiliers.
Norris, R., 7th Royal Fusiliers.
Notley, A. C., Artists.
Odell, J. F., Royal Naval Volunteer Reserve.
O'Donoghue, R. J., H.A.C.
Parsons, E. C., Royal Engineers.
Pechell, M. G., H.A.C.
Pigott, R. M., Royal Engineers.
Pite, R. W., Royal Engineers.
Pool, S., Royal Engineers.
Prynne, H. Fellowes, Westminster Dragoons.
Purvis, A. F., Commission.
Robertson, A. W., Essex Garrison Artillery.
Robertson, R., London Scottish (Pipe Major).
Robinson, A. D., Universities and Public Schools Corps.
Robinson, N. F., Artists.
Rogers, C. W., Artists.
Russell, J. A., Inns of Court O.T.C.
Ryan, H. A., H.A.C.
St. Leger, C. D., Royal Army Medical Corps.
Scott, —, Inns of Court O.T.C.
Scott-Moncrieff, W. W., Royal Engineers.
Sergent, R. N., Royal Engineers.
Seward, H. J., Royal Engineers.
Sharpe, E., Artists.
Shenstone, G., Capt., 7th Essex Regiment.
Shuffrey, L. A., Commission.
Shuffrey, G., Artists.
Silcock, A., Artists.
Smith, A. D., Royal Engineers.
Smith, E. Kennedy, Artists.
Sowerby, F. D., Commission
Spooner, F. P., City of London Field Ambulance.
Squire, J. H., Commission.
Steer, W., Artists.
Stephens, W. L., Engineer Units, Royal Naval Division.
Stoddart, R. W., Royal Engineers.
Swindells, F. H., Royal Engineers.
Tanner, N. B., Royal Engineers.
Tanner, S., Royal Engineers.
Tapper, M., Artists.
Thoresby-Cooksey, H., Royal Garrison Artillery.
T.
Topham, G. R., Artists.
Trinick, P. J., Engineers Units, Royal Naval Division.
Unwin, E., Australian Medical Service.
Walker, R., Sergt., Artists.
Walsh, J. B. M., Artists.
Walter, R. A., Middlesex Public Schools Batt.
Waterhouse, M. T., 2nd Lieut., Sherwood Rangers Yeomanry.
Watson, Bryan, Artists.
White, T. F. H., Inns of Court O.T.C.
Whitehead, H. M., Commission.
Williams, W. J. V., Royal Engineers.
Wilson, J., Artists.
Wood, H., Universities and Public Schools Corps.
Yetts, L. M., Commission.

VENTILATION.

IN connection with the autumn general meeting of the Institution of Heating and Ventilating Engineers, held on Tuesday at University College, Gower-street, Mr. Arthur H. Barker gave a lecture on "Some Possibilities in Ventilation: the Practical Application of Recent Discoveries in the Physiology of Ventilation." Dr. Leonard Hill took the chair.

Mr. Barker said that no person who had carefully considered the problems of ventilation from the scientific standpoint could fail to have asked himself the question whether the theory of ventilation as the ventilating engineer now knew it could be properly called a science. There was a good deal of engineering science directly and indirectly connected with certain portions of the subject, such, for instance, as the design of a fan, the design of trunking, the resistances to the flow of air, and similar things; but these subjects were not of the essence of the subject, and did not exclusively belong to the science of ventilation as they knew it. The science of ventilation was strictly that body of knowledge which concerned itself jointly with the means for producing and the physiological effect of the distribution of air in a ventilated room and the suitable conditioning of the air so distributed. There was obviously a great deal to be known about it, though how great the importance of exact knowledge on the subject was to the ventilating engineer as such was not quite so clear. The science of physiology was closely allied with that of ventilation, and indeed a portion of the former science was an indispensable part of the latter. So far as the importance of the application of that science to the practical work of the ventilating engineer was concerned, he was not yet convinced; although great advances had been made, no definite agreement had yet been arrived at as to why ventilation was necessary, and neither had it yet been laid down in definite terms what was and what was not to be considered good ventilation and why. Fifty or even twenty years ago ventilating engineers were in no doubt that any air containing more carbon dioxide than fifty parts in 10,000 was on that account alone unfit to breathe, but as in so many other branches of science the more that had been learnt about this matter the less seemed to be known. Few people at the present day would lay claim to such specific or exact knowledge on the subject of ventilation as their immediate predecessors did, or rather he would say the better informed a man was the more doubtful he would feel about the validity of such claims. No one who had carefully studied the evidence could be in doubt that the present theory on which the ventilating engineer was working was insufficient, for they had the most lamentable failures to record everywhere, even in rooms to which very large volumes of air were supplied. If ventilation merely consisted in the supply and distribution of a certain calculated volume of air to a room, it was clear that a very small amount of science was necessary. It did not need a great amount of science to count the number of beds in a hospital ward or the number of seats in a theatre, and multiply this figure by an arbitrary number of cubic feet of air per head per hour; to buy a fan from a maker which would deliver the necessary quantity, and connect up a few trunks to gratings so that they could force in the calculated quantity of air without exceeding a certain moderate velocity in the flues of, say, 20 ft. per second. He would, however, be a bold man who would call this order of knowledge science. There were notorious instances of failure of such schemes, but yet there were few people who could explain why they were failures. An ordinary architect who might perhaps make no claim to any knowledge of the science might, and sometimes did, carry out his ventilation without any reference to the engineer, and if he heard no complaints might claim to be as competent to deal with ventilation as the engineer. There were persons who did not believe in systems of ventilation. If a room became too warm they would open the windows, and if too cold they would shut them, and they would claim that this method was just as good as a £5,000 proposition, and in many cases they would have considerable difficulty in proving them wrong. At any rate it might be argued that such simple methods could not easily be worse in effect than some of the notorious and expensive failures that were on record. He was nevertheless satisfied that the real science of ventilation will make a call on the best ability which could be brought to bear on it. It seemed to him it was possible by careful investigation to lay down conditions, such that if they were observed a room might be and must be satisfactory from the point of view of ventilation, and if such was the case it was the primary duty of the science of ventilation to lay down such rules by experiment and to show how they could be carried out in practice. There was, of course, always the difficulty to contend against which could never be overcome completely that different persons' ideas of good ventilation differed greatly. In the first place, the science must direct itself to the investigation of the fundamental question which was yet far from being decided as to how they could lay down quantitatively in terms of physics and chemistry the objects for which they were striving. The old-fashioned theories about carbon dioxide, organic poisons, and the like had been blown to the four winds by such experimentalists as Dr. Leonard Hill and Dr. Haldane, and the object of ventilation was now held to be to remove heat from our bodies, water vapour which they had breathed out, and in general terms to prevent them getting too warm. One group of questions which must be settled definitely was to what extent efficient ventilation consisted merely in the adequate removal of heat from their bodies and organic smells and water vapour. It was impossible to avoid the conclusion that if it was not the whole truth it was at any rate very largely true that what Dr. Leonard Hill called heat stagnation was responsible for many or perhaps most of the effects which they had been accustomed to refer to as those of defective ventilation. For himself he was equally sure this was not the whole truth, and that there was something in ventilation over and above the loss of heat and the suppression of smell. He was quite convinced that all air of the same temperature, pressure, humidity, and velocity had not the same effect on the human organism. Air lost that quality, whatever it was, which with present knowledge they could only describe as crispness when it passed over accumulated dirt, or into close contact with metal, or through a long underground pipe channel, or when it was heated by hot surface, for this quality of crispness was not merely a matter of temperature, humidity, and velocity. Still, they might provisionally accept the theory that the temperature, humidity, and velocity of air in a room were points of very great importance in the ventilation, and that one of the chief, but not the only, reason for this importance was that they determined jointly the rate of heat loss from the body. If they accepted the view that the object of controlling the temperature, humidity and velocity of air was solely to regulate the rate of heat loss from the body, it would be evident that the only instrument they required to measure the effect of ventilation was one which would enable them to measure the joint effect of these three factors so far as they affected the abstraction of heat from the body. On this assumption the possession of such an instrument at once raised the science of ventilation to a higher plane, for it enabled them to measure the success of a scheme of ventilation objectively. Mr. Barker proceeded to describe two instruments devised by Dr. Hill with this object, and said their invention was an event of the utmost importance. If the control of heat loss was the sole object of ventilation (a theory he did not himself accept), then a modified form of these instruments was all that was required to show whether a room was well ventilated or not. His own view was that they needed at least in addition to determine the velocity of movement at all parts of the room; also what he called the radiant temperature and the absolute temperature of the air itself; the amount of dust in the air, and perhaps the amount of organic products in the air when the room was crowded. Dealing with the different ways of introducing air to a room, Mr. Barker said all physiologists were agreed that the rate of loss of heat from the face and hands ought to be far greater than that from the feet, which would indicate that downward ventilation was superior from this point of view. The view he himself held strongly was that a horizontal velocity must also be produced before the indoor ventilation could be regarded as satisfactorily accomplished, and that it was necessary either to stimulate the nerves of the skin or for some other physiological purpose quite independently of the loss of heat from the body. They had to find by experiment what was the maximum velocity people could endure, and by subjecting a large number of people of different physique to the same experiment and taking careful note in each case they might conceivably arrive at a certain medium velocity of air of suitable temperature and humidity which should not be perceptible to anyone as an uncomfortable draught, while in all cases it produced a feeling not of cold but of refreshment. This was the velocity of air which the ventilating engineer should aim at producing. His own view of the method of securing horizontal velocity was from the back to the front of a room. Visible rotating fans were out of the question, and they would have to introduce the air through gratings in the wall. To summarise the observations which appeared to him to be necessary in order that they might get a complete idea of the state of the ventilation of any given room, it appeared to him that they must have the wet and dry kata-thermometer readings; must know the absolute temperature of the air and the mean radiant temperature

as given by his instruments; and should have readings indicating the velocity of the air in all parts of a room when the room was full. They should also have the analysis of the air and particularly to show what amount of organic products exists in the room. Further, they should take the electrical readings and determine the degree of ionisation of the air of the room.

EXAMINATION OF CONCRETE FAILURES FOR THEIR DETERMINATING CAUSES.

In a paper on this subject, read by Mr. R. S. Greenman at the recent annual meeting of the American Society for Testing Materials, it is stated that concrete is said to be its own best inspector, and it is a well-known fact that defects in concrete will sooner or later make their presence known.

The reasons for poor concrete have been proportioned as being 90 per cent. due to poor workmanship, 8 per cent. due to poor aggregates, and 2 per cent. due to poor cement. These reasons and the additional one of the influence of the water used, are responsible for most of the failures in concrete. These failures are more frequent in smaller than in larger work and the resulting losses are proportionately greater.

To find a reason one must examine all possible causes and must follow up all clues that tend towards disclosing the reason. The design, the quality, and proportions of the materials used, the mixing and placing and the care of the finished concrete must all be considered. In making an examination, each case must be treated entirely upon its own individuality; and the right clue will not be found unless the investigator knows good and poor concrete and knows why certain things produce certain results in concrete.

In trying to solve a problem of poor concrete the elements to be investigated are cement, aggregates, workmanship — and water. The common tendency is first to place the blame upon the cement, but if it is found that, in accordance with good and generally common practice the cement has been tested and has met the standard requirements, the cement then becomes a negligible factor, but if it has not been tested, it must be considered as a possible cause, and it may become a large item in the study. It must be admitted that since so much stress has been laid upon the value of having cement tested before use, and since it must indeed be a small work on which it has not been so tested, the percentage of failures due to poor cement has been reduced to a very small amount.

The strong and weak points in both the coarse and fine aggregates have been too often neglected. The coarse aggregates can usually be judged by easy inspections, but sand or other fine aggregates need very careful examination. Their characteristics—such as the grain, the grading, the cleanness and freedom from organic impurities and excess of loam are items of knowledge which are obtainable mainly in the laboratory, but which are very essential for the correct diagnosis of a concrete failure.

The effect of workmanship is by far the largest factor and in it all others are included, for a poor workman can destroy the value of the best materials. Under the head of workmanship must be considered such items as design, proportions, placing, and actions resulting from heat, frost, electrolysis, etc., which should have been taken care of in the process of making, hardening, and preservation.

As another element of importance, it must always be kept in mind that the water which is used in making the concrete, or which may come in contact with it, may prove to be a very influential factor for harmful results.

To illustrate the possibilities of various influences, specific cases are cited showing effects of certain elements upon water, sand, and stone and the resulting effects upon the concrete. The effects of poor workmanship are seen in various conditions found in concrete. To find these effects it is also necessary that the investigator shall know how to grasp and to follow up the first indications of there having been anything wrong.

Some external influences also cause concrete to fail and the possible relation of these to concrete failures must be considered. For many years all the failures of concrete were considered as being due to the formation of certain chemical relations; but as it is commonly acknowledged at present that an impermeable concrete will stand in sea water as well as elsewhere, although subjected frequently to more severe actions than other concrete, its failures are due frequently to the same causes as those of other concretes and therefore the same examinations should give the same results. Similarly, since electrolysis is considered as a cause for the breaking down of concrete, the liability of concrete being affected by its influence will depend upon whether or not the concrete comes under the influence of an electric current. If it does, then its influence needs to be examined. If it does not, then the examination should also follow the usual method.

The value of laboratory tests and analyses should not be overlooked. While perhaps not giving such definite information as a field inspection, they should be used to the fullest extent to help establish the strength or weakness of a reasonable theory for the cause of failure. Where time will permit, laboratory tests of concrete made of the aggregates under as nearly as possible the same conditions, will give results that should aid in determining the fault in the original. Test specimens so made and treated should give practically the same results, and when compared with test specimens made under ideal conditions or with standard materials should give the investigator the reasons for the failure.

All means possible should be used by an investigator in making his examination, and his conclusions must be drawn only after he has considered the failure from every probable cause, with reason and fairness. The object of the examination is either to place responsibility or to guard against future failures, and right conclusions are the only ones that should be drawn if justice to either objective is to be given.

THE MOVEMENT OF TALL BUILDINGS.

THE recent statement of the Superintendent of Buildings of Chicago, that virtually all of the immense buildings and sky-scrapers of the down-town district are out of plumb, calls attention, says the *Contract Record*, to a peculiarity of tall buildings little realised and still less understood outside of the architectural and engineering professions. The common impression is that all heavy and massive structures are rigid, firm, and immovable; yet in Chicago, according to the Department of Buildings, they have not one but scores of buildings like the leaning tower of Pisa, only they do not lean so much, 30 in. being the most that any of them are out of plumb.

So far from being firm and rigid, all tall buildings are subject to two distinct movements, and all heavy buildings erected on anything but bed rock have three distinct movements to their credit.

The City of Chicago, built as it is on substrata of clay, says *Building Progress*, furnishes the most interesting study of the movement of buildings, and the greatest number and variety of examples. All of the early sky-scrapers of that city were carried on floating foundations or on piles driven deep into the clay. These buildings, without exception, settled into the soil due to their weight, the distances they settled varying from 3 in. to over 5 in. Many of these buildings, notably the Great Northern Hotel, are partially carried on jacks and periodically levelled up as settlements occur, then, after all subsidence has taken place and the buildings have finally come to rest, the jacks are removed and the foundation walls filled in with masonry.

That is one of the movements of buildings, then—settlement; but settlement takes place only in those buildings erected on floating foundations. When the footings are extended down to bed rock, as all footings for the present-day buildings in Chicago are, the amount of settlement that takes place is *nil* and may be disregarded.

But even buildings with their footings carried to bed rock lean, or are racked, out of plumb, and the taller the buildings the more they are likely to lean, although the amount they are out of plumb is seldom enough to endanger the structure. Recently the Building Commissioners of Chicago ordered the Unity Building straightened, as it was "unsafe but not dangerous," being 30 in. out of plumb. In an interview they said: It is impossible to prevent the big buildings here from leaning. Some of them are not straight when they are finished, but that does not impair their safety. It is probably safe to say that every building in the city leans more or less. If they are on floating foundations they also settle gradually. But there is still another movement of buildings, and the most interesting of them all to consider. According to an exchange, the Eiffel Tower swings perceptibly in the wind, and even stone shafts like those of the Bunker Hill and Washington monuments move several inches at the top. In these cases the cause of the action is not only the wind, but the heat of the sun. The side that is towards the sun expands during the day more than the side in shadow. An interesting device has been employed to show the movement of the dome of the Capitol at Washington. A wire was hung from the middle of the dome inside the building down to the floor of the rotunda, and on the lower end of the wire was hung a 25-lb. plumb bob. In the lower point of the weight was inserted a lead pencil, the point of which just touched the floor. A large sheet of paper was spread out beneath it. As the dome moved it dragged the pencil over the paper every day. The mark made was in the form of an ellipse 6 in. long. The dome would start moving in the morning as soon as the rays of the sun began to act upon it; and slowly, as the day advanced, the pencil would be dragged in a curve across the paper until sundown, when a reaction would take place and the pencil would move back again to its starting-point. But it would not go back over its own pencil track, for the cool air of night would cause the dome to contract as much on the one side as the sun had made it expand on the other, and so the pencil would form the other half of the ellipse, getting back to the original point all ready to start out again at sunrise.

In the three movements affecting tall and heavy buildings we have, then, particularly in the expansion and contraction movement which is of daily occurence, and which affect sky-scraper buildings as well as all other tall structures, a condition which must be taken into consideration when planning the buildings. Lines of steam pipes, stacks of drainage pipes, lengths of water pipes, vacuum cleaning pipes, refrigeration system pipes, electric wire conduits, and the various networks of tubing which cross and criss-cross inside of a building will naturally be more or less affected by the movements of the building; and if long life is expected of these various systems of piping they must be so installed that they can "give" under the movements of the building without damage to the piping, and sufficient to compensate for the change of position.

Besides pointing out the necessity for flexibility for the piping systems in tall buildings, the movements of buildings shows how desirable it is to have solid foundations the footings of which extend down to bed rock. Floating foundations are all right for some kinds of buildings, but for the sky-scraper type there is nothing so good as the solid rock of old Mother Earth.

POSSIBILITIES OF THE BRITISH PAINT AND VARNISH TRADE.

THERE was a large gathering of the members of the Paint and Varnish Society at St. Bride Institute on October 8, when Dr. F. Mollwo Perkin opened a discussion on "The Possibilities of the British Paint and Varnish Trade owing to the European Situation."

Mr. C. E. Wilkinson (President) took the chair, and remarked that, having regard to the present industrial crisis, and with peculiar reference to the paint and varnish industry, they had in their Institute a well-equipped and thoroughly established organisation as a medium for conjoint action by the industries as a whole or any section thereof. They were ready to assist manufacturers, merchants, craftsmen, and others in dealing with all matters of technical interest for the development of their trade and the advance of scientific knowledge.

Dr. F. Mollwo Perkin in opening the discussion pointed out that the paint and varnish trade drew its raw products from practically all parts of the world, and consequently could not help being interested in the colossal war in which we were at present engaged. But although at present there might be difficulties

in obtaining materials, this dreadful upheaval might in the long run be of greatest value to the industry, provided that the manufacturers and users had sufficient foresight, knowledge, and initiative. It caused a national stock-taking, and led manufacturers to ask whether it was not possible to obtain many of the raw materials required in the industry from British sources, and thus create new industries. He was aware that there was great conservatism amongst the trade, and it "was up" to the Paint and Varnish Society to show when one medium failed another could be used. The Board of Trade returns for 1913 showed that their imports of paint material from foreign countries far outbalanced the exports. During 1913 they imported 321,323 cwt of white-lead, of the value of £362,913; 60,880 cwt. of red-lead, valued at £63,229; 368,669 cwt. of zinc oxide, of the value of £429,115; 1,092,645 cwt. of barytes, of the value of £150,376; and 918,162 cwt. of other material used in the industry, of the value of £837,589. The imports from Germany alone were: White-lead, 139,701 cwt.; red-lead 56,995 cwt.; zinc oxide, 136,687 cwt.; barytes, 805,559 cwt.; and unenumerated, 379,924 cwt. The total value of these imports was £978,985. From the British possessions they imported during the year 26 cwt. of red-lead, 229 cwt. of zinc oxide, and 10,939 cwt. of other materials unenumerated, the whole being only of the value of £18,671. Of course, the high imports of most of the products were due to the distribution of the materials themselves, but they were not devoid of the raw materials in this country, and in many cases they could be obtained from their Dominions overseas. Thoroughness and business methods had, however, also largely contributed to the ascendancy of German trade. Dr. Perkin gave a further series of tables, showing that during 1913 the total exports from Great Britain to foreign countries of white and red lead, zinc oxide, barytes, etc., only totalled 21,690 cwt., of the value of £24,800, whilst the exports to British possessions were almost negligible. To prove that some of the materials required were obtainable in Great Britain he showed that in 1911 (which is the latest return obtainable) 44,118 cwt. of barium compounds, 23,913 cwt. of lead ore, and 17,652 cwt. of zinc ore were produced. Failure of foreign competition might make it possible to increase these supplies, but probably not sufficiently to meet the demands. But much of the necessary raw materials could be obtained from the Colonies, and, as an example, in 1911 Australia produced 516,390 tons of zinc concentrates, a portion of which might be converted into zinc white and shipped to Great Britain, or the whole of it might be worked up here. At present, however, a large portion of the Broken Hill zinc was exported to Germany. The paint and varnish trade was dependent on such large areas of production that it was difficult to know what to mention and which to leave out. There were not only the pigments, but also the mediums, and the bulk of the latter must necessarily come from foreign countries or the Colonies. There was no reason, however, why they should not make red-lead in this country, for at one time English red-lead was considered to be superior to any on the market. There was also very little ultramarine in this country. The making of this required considerable skill, but there was no reason why they should not make it in large quantities. They had also all the qualifications for making Prussian blue. Dr. Perkin proceeded to deal with the utilisation of coal-tar by-products and the manufacture of aniline dyes, and urged that these could only be successfully undertaken by utilising the services of chemists. He pointed out the difficulty there was in getting the chemist and engineer to work together, which was so necessary a factor. With regard to oils, they could get them from their Colonies or from the Colonies captured from the Germans. In conclusion, Dr Perkin pointed out that if anything was to be done it must be done at once. Where a manufacturer had facilities for tackling a certain line he should do so; but lines which could not be handled with present equipment should be carefully considered and experiments conducted, and if it could be shown that any of them could be commercially developed there ought to be no difficulty in putting up the works.

Dr. Blackler considered the present position with regard to German productions was a strong indictment against the people of this country. Unless the English industry be built up on sound grounds, on clear research work, and with a clear conception of what was necessary, then when the war was over their competitors in the past would come in again and take the trade from them.

Mr. Davidson thought that if ever the chemist had an opportunity he had it now, providing that financiers appreciated the need and value of chemists. German houses would be handicapped for a long time after the war.

Mr. Cruckshank Smith pointed out that many of the so-called raw materials of the paint and varnish industry were the finished products of other industries. With regard to lead products, home supplies could be supplemented by supplies from British Colonies. The reason why British colour manufacturers had imported German red and orange lead was because from their point of view it was a distinctly better product. It simply meant that the Germans had taken pains to offer a material suitable for the purpose for which it was intended. In this country they were in the middle of the elementary materials found in Prussian blue, with the exception of potash.

Mr. H. Toch (New York) referred to the fact that when he entered his father's business in 1880 they obtained rose-pink, Dutch-pink, blues, and other things of that sort from Great Britain, but a few years after they were visited by German representatives, who told them they were supplying these goods to England, and so they began to import from Germany. He reckoned that if British people took this thing up they could get more trade than they ever had, and he promised them that when they sent their agents to America they would give them all the orders they could.

Mr. J. Russell Thornbery denied that the British manufacturer had been so negligent in the past, and claimed that they had all had their hands full. He hoped that they would never see some of the cheap German industries in this country. The whole question was an economic one, and if as manufacturers they did not get their materials at the lowest price then they would have no factories to go on with. It was absurd to say they should taboo German zinc if it came in at 25s. a ton, whereas their own manufacturers might be charging 35s. a ton. A great deal of talk about the British manufacturing these goods was because many of them wanted someone else to manufacture for them what it did not pay them to manufacture for themselves.

Mr. Jones (Bristol), as a large user of German and other Continental goods, said they must realise that it would not pay them to make many of the things they got from Germany. The manufacturer would continue to use the cheapest materials because the painters they supplied with the finished product would not purchase from them if they could get things from Germany or any other country cheaper.

Mr. Vickers pointed out how German manufacturers were advantaged by the banking facilities in that country. The banks would advance money to a man with good credentials in Germany to start a business, and when he had got orders they would advance him the money to enable him to manufacture them.

Mr. Dewer, as a buyer of large quantities of pigments, said there was no doubt that the best lithapon or zinc white was made in this country at Widnes, whilst he had bought ultramarines cheaper in this country than anywhere else. He thought something could be done with potash, as Irish and Norwegian kelp was a very good source of potash.

Mr. Harrison remarked that the paint manufacturer simply assembled a number of finished products and used them, and he did not see how a man with such a trade could also manufacture first-class chemicals.

Mr. John Lewis apologised for introducing politics, but this was a financial question, and he asked if they thought a single manufacturer was going to spend money in putting up a factory unless he was guaranteed that he would not have his competitors come in and undercut him after the war.

Mr. Britton expressed the view that a number of the materials required in the paint and varnish industry could be made in this country.

Mr. Dyson pointed out that the British Ultramarine Company had the facilities for manufacturing, but the difficulty was that hinted at by Mr. Lewis. Derbyshire had huge deposits of lead untouched. In Cumberland were mines worked chiefly for copper, and there there were mounds of barytes which only wanted working.

It was decided to adjourn the discussion till October 29.

WAR ON ENEMY'S TRADE.—II.*

In the preceding article reference was made to the productions of locks, door furniture, and other similar fittings used in the building trade the supply of which is derived in some measure from Germany and Austria, both by our own and neutral markets.

Let us see how the matter stands in regard to cast-iron goods (stoves, baths, etc.).

According to the information published by the Commercial Intelligence Department of the Board of Trade:—

Germany exported in 1912:—	
Art castings and other fine castings not malleable	£8,000
Economisers, worked	12,200
Cooking stoves, ovens, parts of ovens, etc., boilers for central heating, etc., worked	610,000
Cooking utensils, baths, lamps, and other iron wares, worked	1,578,100
	£2,208,300

The corresponding export for Austria-Hungary in 1913 amounted to £43,600.

An analysis of the distribution of the German export to various markets shows the principal markets for her cooking stoves, ovens, parts of ovens, etc., of cast-iron (in 1912) were:—Netherlands, £82,700; Switzerland, £75,300. Italy, £61,100; Belgium, £52,500; Russia, £35,500; France, £34,700; Roumania, £34,200. The value of such exports sent to the United Kingdom amounted to £15,500, but to the British Dominions and Colonies was quite insignificant.

What strikes one as remarkable about these figures is the fact that in all those countries except the United Kingdom the German goods have to face a tariff barrier of varying intensity, high in France, Russia, and Italy, relatively low in Holland and Belgium and Switzerland, and yet her exports to the United Kingdom are negligible by comparison with those to the protected countries. It looks as though success in foreign markets depends largely on adaptation to local wants, and is only relatively affected by a high or low tariff. Compare Germany's exports to high and low tariff countries mentioned above. It would seem also that the Germans have not yet seen their way to adapt their goods to the requirements of our free trade market to the same extent as they have to the others.

It should now be the opportunity for our manufacturers to send intelligent designers and sellers into those countries to see what the local requirements are and how they can be met. There should be no slavish following of German designs—German art of that kind is better not imitated—but a study should be made of the problem with fresh eyes and on the spot, and there is little doubt that our people could hit the requirements in a better, more practicable, and more artistic way than can the Germans.

The principal markets for the German export of cooking utensils, baths, lamps, etc., of cast-iron (worked), amounting in 1912 to £1,345,400, were the United Kingdom, Western Europe generally and Switzerland, Italy, Russia, Dutch East Indies, Argentina, and Brazil.

The bulk of the Austrian exports of these classes of goods goes to Italy, Russia, Roumania, Servia and, strange to say, to India. Particulars are given as to special requirements of certain markets, and it is mentioned that Germany is our principal competitor in South Africa and British India for these kinds of manufactures. The Belgian Consul at Kharkov (Russia) says that trade is capable of great expansion, as local works are quite unable to supply demand for iron and steel castings.

The British Vice-Consul at Abo (Finland) says that much trade which now goes to Germany might come to us *if only firms would send representatives regularly to Finland* or appoint agents there.

At Helsingfors English competition seems to be ousting the German, although even yet the latter have the larger portion of the trade. In Spain the Germans have cut us out badly in what have hitherto been regarded as British specialities; this probably means they

* Continued from page 342.

are undercutting, and points to a reorganisation of our British methods of manufacturing, exporting, and selling this class of goods; because the fault is possibly a composite one involving those three agents in the production and distribution of the goods, and they need to co-operate to bring about a reform that will secure and retain the trade.

A good deal of information is given about the type and sale of stoves in Italy which might prove useful to manufacturers seeking to capture that market in which, according to the German Consul's Report, there is a growing trade, in spite of increased native production.

Incidentally, one notes that, judging from the extracts given in the Board of Trade pamphlet, the American Consuls report more thoroughly than those of other nations.

There is a considerable and growing demand in Turkey-in-Asia for oil and coal stoves for both heating and cooking, but a low-priced article is required; Swedish oil cookers are the most popular. In 1912 about 20,000 oil cookers were imported.

An English manager of a German concern in the Philippine Islands reports that catalogues which he has received from Germany (*in both English and Spanish*) gives particulars on such important points as the following, which are usually lacking in British manufacturers' catalogues:—Weight of apparatus, the number of people it is supposed to cater for, the consumption of gas, the prices of the larger sizes—such as stoves for hotels, etc.

According to an American Consular Report there is a large market for cheap stoves among the native population of North China. Unfortunately, it would probably not be a lasting one, because of the imitative capacity and cheap productivity of the native workmen. The majority of stoves of the best class imported into Tientsin are of German manufacture, however. Here is another chance for our people which ought to be readily taken up and probably does not need so much preparatory work as some of the markets do.

The reflection suggests itself that the trade with foreign countries demands a combination between manufacturers, merchants, shippers, and sellers at the other end which will see that at every stage of the progress of the manufacture and sale of the goods wasteful expense is controlled and means adapted to the end that the goods may be marketed at a price which cannot be beaten by any German competitor. For this purpose one would think that the interests of the manufacturers, merchants, shippers, etc., should be a common interest calculated to eliminate a tendency to exploit one another regardless of the ultimate end, which should be to market British goods at competitive prices, and which, if it suffers defeat in consequence, allows the trade to pass away into the hands of German or other competitors. (*To be continued.*)

THE TRADES TRAINING SCHOOLS, GREAT TITCHFIELD-STREET.

WE have before us an interesting Report on the work done at the Trades Training Schools, 153, Great Titchfield-street, of the Worshipful Companies of Carpenters, Joiners, Painter-Stainers, Plaisterers, Tylers, Bricklayers, and Wheelwrights. The Schools, which have been closed, are reopening on the 26th, and their object—which is that "of improving the technique of each craft by actually instructing the men who earn their living by their labours therein"—is an exceedingly useful and important one. In commenting on last summer's exhibition at the Carpenters' Hall we drew attention to the great practical utility of such instruction, which is most important if the applied arts and crafts are to regain the vigour and spontaneity which distinguished them through mediæval times. Though individualism in design cannot have, under modern conditions, the relative importance it once held in art and life, there is still abundant room for its display in modern work.

Naturally, the work of few of the crafts can be as well illustrated by models as that of the carpenter, but despite the difficulty of producing show pieces the practical work of the other crafts can be well taught and demonstrated in Trades Training Schools. The courses of instruction are well arranged and the fees small, and we hope the trades concerned will benefit by the opportunities afforded them.

ARCHITECTURAL SOCIETIES.

Glasgow Technical College Architectural Craftsmen's Society.

At a meeting of this Society, held in the College on the 9th inst., Mr. Alex. Davidson, President, in the chair, Professor Gourlay, B.Sc., A.R.I.B.A., delivered a lecture on "The Orders of Architecture." After introductory remarks on architecture, style, proportion, scale, and use of mouldings, the Professor explained the meaning of the term "Order" as applied in architecture, and dealt with the distinctive features of the five Orders, also with their development from Greek and Roman times till the Renaissance. In showing how the Orders may be studied he explained the method of drawing them, and illustrated the intimate connection that existed between the Order and the building to which it belonged. He then urged that the Order and the building should be studied together as one work of architecture, which they really were. Thereafter a series of interesting slides was shown of Greek, Roman, English, and local buildings to enforce the principles enunciated.

COMPETITION NEWS.

It must be understood that the following paragraphs are printed as news, and not as advertisements; and that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.

The list of current Competitions is printed on page 370.

Schools, Battersea and Greenwich.

Mr. John W. Simpson, the assessor appointed by the London County Council in the competitions for the Linda-street School, Battersea, and the Billingsgate-street School, Greenwich, has made his award as follows:—For Linda-street School, Mr. Arnold Mitchell, F.R.I.B.A., 17, Hanover-square, London, W.; for Billingsgate-street School, Messrs. Wright & Chapman, 38, Grainger-street West, Newcastle-upon-Tyne. The drawings will be on view at the Whitechapel Art Gallery on Monday next.

New Offices, Sheffield.

The Electric Supply Committee of Sheffield City Council has resolved to arrange an architectural competition in connection with a proposal to erect new offices for the Department. The Committee has had under consideration for some time the present provision made for the accommodation of the office staff and the workmen of the meter departments, who are at present accommodated at Commercial-street. These premises are now, and for some time past have been, overcrowded and are not sufficiently central. Notwithstanding this, the Committee felt that they should ascertain the possibilities of extending the present premises, and, acting on instructions, the City Architect has prepared a preliminary plan showing a scheme for extension. The Committee report that they can acquire land and provide certain additional accommodation in extension of the present premises for approximately £18,075. The scheme for the extension of the existing premises included a new showroom, but the Committee are of opinion that it is much more desirable that a showroom should be provided in a prominent position somewhere near the centre of the City. Inquiries as to central sites available for building offices elicited the fact that the most suitable would be one belonging to the Corporation in Bow-street. The site contains an area of 1,690 sq. yds., and if a building four stories in height were erected thereon the Committee estimates that all the accommodation could be provided which could be required by the Department, with space for expansion. The Committee has conferred with the City Architect thereon, and he has prepared rough elevations to Bow-street as follows:—(*a*) A four-story building to provide accommodation for the Electric Supply Department, with space for expansion. Approximate cost of building £35,000. (*b*) A five-story building to provide accommodation for the Department, and space for expansion, and also shops on the ground floor. Approximate cost of building, £42,000. The City Architect has informed the Committee that the site and the scheme gave opportunities for several alternative methods of development and architectural treatment. The Architect also reports that, having regard to the volume of work in hand at present, an architectural competition should be arranged, confined to local architects, and that substantial premiums should be given to authors of design placed second, third, and fourth, which would have the effect of materially assisting local architects and surveyors at the present time and attract a good response in designs. Under all the circumstances the Committee has resolved to appropriate the Bow-street site and to erect a five-story building, provision to be made for a showroom and general office on the ground floor; shops also to be provided on such floor. The Committee also resolved to arrange an architectural competition on the following basis:—(*a*) That the competition be open; (*b*) that the author of the successful design be employed to carry out the work with remuneration on the basis of the R.I.B.A. scale; (*c*) that the following premiums be offered, viz., £150 to the author of the design placed second, £100 for the third, and £50 to the fourth; (*d*) that the bill of quantities be taken by an independent local surveyor to be appointed by the Committee; (*e*) that the City Architect and another person be invited by the Chairman to act as joint assessors.

BOOKS.

Masonry. By GEORGE R. BARHAM. (London: Longmans, Green, & Co. Price 2s. 6d. net.)

THIS new book forms one of the volumes of Longmans' Technical Handicraft Series, and it contains about 180 pages, with numerous illustrations, dealing with all kinds of masonry work. The opening chapter is devoted to tools and machines, which are described in detail and illustrated, and this is followed by notes on the conversion of stone and drawing and setting-out. The two last mentioned are well written, and contain a great deal of information for the student which is not usually to be found in the small theoretical treatise, and in consequence it should be fully appreciated by readers.

The chapter dealing with construction and constructional details contains much which is found in the ordinary book on building construction, and there is rather a lack of originality in this portion. The method of finding the requisite depth of concrete as a foundation under ordinary walls as given on page 62 is not good, as it makes the depth excessive. A better method is to draw a vertical line from the outside edge of the *footings*, and intersect this with a line at an angle of 45 deg., drawn from the intersection of the wall with the top of the footings, on the opposite face. Many of the diagrams in this section are also rather too small for the use of students. Chapters are devoted to erection and fixing and materials, and the last chapter deals with stereotomy or the art of cutting solids into sections of suitable size and shape. This is a useful section of the book, with good diagrams and much helpful information.

The volume should prove a very good text-book for class purposes, as it is well written and concise, while being reasonable in cost.

Applied Mechanics. By CHARLES E. FULLER and WILLIAM A. JOHNSTON. (New York: John Wiley & Sons. London: Chapman & Hall, Ltd.)

THIS volume forms the first part of a treatise of the subject of applied mechanics, and it deals with statics and kinetics in a very complete manner. Every effort has been made to present the matter in a simple, straightforward way, which will commend itself to the student, and the opening chapter is devoted to explanations of the different terms and fundamental principles. Chapters are allotted to statics, centre of gravity, moment of inertia, and kinetics, and these are subdivided into various sections for the purpose of easy reference and good arrangement of the matter.

The book is illustrated by numerous diagrams, which are well drawn and explicit, and the complete manner in which the subject has been dealt with is commendable. There is always a certain difficulty for students in this country to overcome when studying from books by American authors, as the notation is strange and the text rather different in the manner of reading; but this book has much to recommend it, and should repay the extra trouble involved by the reader in this country.

CORRESPONDENCE.

The London Sanitary Company.

SIR,—In response to Capt. Martin's request, I visited the headquarters of the London Sanitary Company, and gathered that those who joined it would be required to devote their whole time to the Army. I am quite sure that, in common with the writer, there are many of your readers who, while most willing to assist, are not in a position at the present moment to abandon their business entirely, and, in view of the importance of sanitation to success in war, it seems a great pity that some method cannot be devised of utilising their services. The need for improved sanitation in the many Army camps throughout the country is most urgent, and in the circumstances civilians might be called in to help.

It also appears curious that, while skilled mechanics who join the Army as such are paid at rates corresponding to those obtaining in similar capacities in civil life, no such provision is made in the case of a branch where a professional knowledge of sanitary science is expected. P.A.S.I.

Banker and Bench Marks.

SIR,—The *Builder* of July 10 last, pp. 36-8, contains a report—with illustrated examples—of Mr. W. E. Gawthorp's interesting paper upon "Ancient Banker Marks" read before the London members of the National Association of Master Monumental Masons and Sculptors, at Anderton's Hotel, on May 20.

Is there not some connection, or, at least, affinity, between banker and bench marks and their uses? A banker is, I believe, the stone bench which masons use for cutting and squaring their work; a bench mark—the familiar broad-arrow, or heraldical pheon, with a top-bar superadded, of the Ordnance Survey—is incised on a coping, kerb, parapet, ledge, or similar elevated table surface. The two words seem to have a common source and signification, namely, a table or edge raised above the ground.

Bench is the O.E. *benche, benk;* A.S. *benc;* O.S. *bank, binki;* Icel. *beckr;* Swed. and Dan. *bänk, bank;* Gael. *binnse* and Ir. *binse.* Compare with, for bank, the A.S. *banc, benc;* Fr. and Prov. *banc;* Ital. *banco;* Dutch and German *bank;* Swed. and Dan. *bänk, bank.* See also the third row of the lower group on p. 37 and No. 16 on p. 35, cited, for the "broad arrow" mark. W. E. MILLIKEN.

GENERAL NEWS.

Professional Announcement.

Mr. Gilbert Waterhouse, who was carrying on his practice at 1, Temple Fortune House, Hampstead Garden Suburb, N.W., has joined the Universities and Public Schools Corps, and in his absence Mr. Herbert A. Welch, A.R.I.B.A., is carrying on his work at 7, New-square, Lincoln's Inn, W.C.

Bequest to the Architects' Benevolent Association.

A bequest of £1,000 is left to the Architects' Benevolent Association by the will of Mrs. Rosa Cates, of No. 12, York-terrace, Regent's Park, widow of Arthur Cates, F.R.I.B.A.

Architects' War Committee: Prevention of Unemployment.

A fund has been started for providing work for architects whose means of livelihood are practically stopped by the war. The administration of this fund is in the hands of the unemployment sub-committee, which is occupied, firstly, in ascertaining those architects in actual need of employment in consequence of the war; secondly, in evolving schemes of a useful nature by which these architects may be temporarily employed; and, thirdly, in appealing for financial support.

1. Architects in actual need of employment in consequence of the war are invited to submit their cases to the Hon. Secretary, at 28, Bedford-square, W.C. These cases will be considered by a sub-committee in strict confidence.

2. Suggestions are invited for schemes of a useful nature by which architects may be temporarily employed. For instance, small fees might be offered for measured drawings of buildings of architectural or historical interest or for civic survey work.

It is thought that the various architectural and other societies throughout the country would be glad to co-operate in giving effect to these proposals.

3. The War Committee have already issued an appeal for funds, and it is hoped that this appeal will meet with a liberal response. The proportion of this fund available for the purpose of providing work can only be regarded as a nucleus, and a generous support should be forthcoming from all who realise that the present opportunity is an exceptional one for undertaking the work proposed. The main object of the sub-committee is not to distribute benevolent aid, but to provide architects with temporary work of such a character that at the termination of the war his work would be of a distinct value to the community.

The New Athens.

We learn that Mr. Beneckes, Mayor of Athens, has informed Mr. Thomas H. Mawson, of No. 28, Conduit-street, W., and Lancaster, that his scheme for the replanning of Athens will be proceeded with. Mr. Mawson's plans for a reconstruction of the city—framed some months ago—in co-operation with Dr. Karo, of the German School of Archæology in Athens—comprise a new Union railway station to concentrate the lines that converge into the city and to serve a population of, say, 500,000 ten years hence. A boulevard is proposed through the undesirable quarters now lying around the Acropolis, and sites are chosen for new Houses of Parliament, the Ministries, and other public buildings, as also for several large hotels, factories, and business premises. Mr. Beneckes has made himself acquainted with the question of housing the people as it is now being developed in our country, and has made particular study of several English garden cities.

Housing at Barry.

The Local Government Board has given formal permission to the Barry District Council to borrow £6,900 for the purpose of erecting twenty-four dwelling-houses under the Housing of the Working Classes Act.

The Art World and the War.

Art lovers in this country have drawn up a protest against the vandalism of German soldiers. Copies of this protest have been sent to the Comte de Lalaing, Belgian Minister in London; the American Ambassador, with a humble request that it may be forwarded to the President of the United States; and Baron Kervyn de Lettenhove, art adviser to the Belgian Government. Those who have signed include well-known collectors; Trustees of the British Museum, the National Gallery, the National Portrait Gallery, and the National Galleries of Scotland; the Director and Principal Librarian of the British Museum; the Directors of the National Gallery, the Victoria and Albert Museum, and the National Galleries of Scotland and Ireland; the Keepers of the Wallace Collection and the National Gallery of British Art; Keepers in the British Museum; the Joint Honorary Secretaries of the National Art Collections Fund, and many critics and others prominent in the art world.

Housing Scheme at Bolton-on-Dearne.

At Bolton-on-Dearne a Local Government Board inquiry has been held into the application of the Bolton Urban District Council for sanction to borrow £71,000 for purposes of providing houses for the working-classes. One scheme of fifty houses has already been carried out, and now it is proposed to erect 310 houses to meet the heavy demand for accommodation imposed on the district by a large colliery at Barnburgh, which is now being opened out. The houses will be erected at Bolton-on-Dearne and at Highgate, adjoining the proposed light railway.

Cottages in South Dublin.

Mr. Henry M. A. Murphy, Local Government Board Inspector, has issued his Provisional Order confirming an improvement scheme made by the South Dublin Rural District Council under the Labourers' Acts. The Order provides for the erection of 220 cottages in South Dublin in the electoral divisions of Clondalkin, Palmerston, Rathfarnham, Tallaght, Terenure, and Whitechurch. Four hundred and eighty-two cottages have already been built in the rural district, so that the new scheme approved by the Inspector brings the number of cottages to slightly over 700.

Money Due to British Merchants.

It is understood that the Government are considering what measures can be taken respecting those British firms which have large amounts due from abroad, and it is thought that they may be willing to guarantee a portion of any loss made by banks in advancing sums to their customers against such sums.

The Late Mr. F. D. Clapham's Estate.

Mr. Frederick Dare Clapham, F.R.I.B.A., of the Avenue, Beckenham, Kent, and formerly of Eltham, Kent, senior partner of the firm of Messrs Clapham & Symons-Jeune, who died on July 17, aged forty-one years, has left estate to the gross value of £2,811.

Ancient Architecture.

Mr. Banister Fletcher, F.R.I.B.A., gave the first of twenty-four University Extension Lectures on "Ancient Architecture" at the British Museum on the 1st inst. In these weekly lectures he will trace the evolution of architecture in Egypt, Assyria, Greece, Rome, and Byzantium, with special emphasis on the influence of ancient art on all subsequent styles down to our own day. The lectures will be illustrated by some 1,200 views. The lectures are delivered on Thursday afternoons at 4.30 in the Assyrian Saloon of the Museum. The lecturer pointed out that architecture was in all ages the visible exponent of civilisation, and that present-day buildings were the product of ancient art and of modern needs. He then described the different influences which had their part in the evolution of the building art.

British Fire Prevention Committee and the War.

The British Fire Prevention Committee is still short of fire surveyors (architects, surveyors, or insurance officers) for occasional fire survey in the South of England, Home Counties, and East Coast, and will be glad to receive applications to 8, Waterloo-place, London, S.W.

Vandalism in Belgium.

The ground covered by the members of the Society of Architects during their visit to Belgium in 1891, when they were received by the then King of the Belgians (Leopold II.), is now the scene of so much architectural devastation that special interest attaches to the Society's meeting to be held at 28, Bedford-square, W.C., on October 22, at 8 p.m. Mr. G. A. T. Middleton, A.R.I.B.A., the organiser of the tour in 1891, will exhibit lantern slides of the principal buildings then visited, and also some others showing the devastation caused by the German bombardment.

The United Arts Force.

Of this corps, which has already a muster roll of 900, consisting chiefly of artists and actors, the "F" Company is recruited from representatives of the graphical arts alone. Amongst the painters and sculptors who have joined are Mr. F. Derwent Wood, A.R.A., Mr. John Lavery, A.R.A., Mr. E. Barnard Lintott (who will be the musketry instructor), Mr. John Tweed, Mr. J. J. Shannon, R.A., and Mr. Granville Fell, also Mr. Poole Rickards, architect, together with Mr. Roy Horniman, Mr. John Coates, Mr. F. R. Benson, and Mr. Blair Leighton, R.I. The headquarters of the corps will be established in the Galleries, Burlington-gardens, which are placed at their disposal by the Council of the Royal Academy of Arts; and Lord Desborough has lent the grounds of Taplow Court, near Maidenhead, for purposes of a camp.

Housing Scheme, Birmingham.

The special Housing Inquiry Committee of the Birmingham City Council has prepared an interim Report in which it is pointed out that there are within the boundaries of the city 149,228 houses at rentals under 10s. and 67,052 under 6s., of which 43,366 are of the

back-to-back type, 27,518 houses are situated in courtyards, and 42,020 have no water supply inside the dwelling. It is calculated, therefore, that any scheme of rehousing the population now provided with inadequate accommodation would have to contemplate the erection of not less than 50,000 houses. During recent years the migration of the working classes from the centre to the suburbs has almost ceased because sufficient new houses are not being erected. The Committee is therefore of opinion that a resumption of building in the suburbs is a necessary preliminary to more drastic measures in the centre. To that end it is recommended that the Council should purchase estates in the undeveloped areas and, after developing them, let the frontage to public utility societies and builders, imposing suitable restrictions on ground rents.

Reims Cathedral.

An Irish cavalry officer who has visited the Cathedral at Reims wrote on October 1:—"It is a very mournful sight, but the damage done is not so great as I expected to see. Of course, all the beautiful stained-glass windows have been smashed, and the statuettes and stone carving outside the building are very badly damaged, but the outside frame, roof, and pillars still stand, and the Cathedral itself can easily be restored. I should not think that any big shells actually struck the building, as otherwise more damage would have been done. It appears that the shock of the explosion was quite enough to smash windows, etc. It is quite evident that the Germans directed their fire on the Cathedral, as the suburbs and small houses have been untouched. The Cardinal's house and all the lovely old houses, however, have been ruined. The altar of the Cathedral has not been touched, and most parts of that portion of the church are only slightly damaged. Pictures and tapestry are also untouched."

The Institution of Electrical Engineers.

The opening meeting of the Institution session will be held on Thursday, October 29, at 8 p.m., when the President, Sir John Snell, will deliver his inaugural address. At this meeting a marble bust of Michael Faraday will be presented to the Institution by Mr. Llewellyn Preece, on behalf of the family of the late Sir William Preece, K.C.B., F.R.S., Past President.

The Institution of Municipal Engineers.

Capt. Arthur J. Martin, M.Inst.C.E., is forming a second London Sanitary Corps, which has volunteered for service abroad. The chief duty of the new company will be to supervise the water supply and camps and billets, reporting defects and instructing the squads of the combatant units. The company will be a branch of the R.A.M.C.T.F., and the men whom he is now enrolling are drawn from the various professions and trades connected with sanitation, mostly engineers, surveyors, architects, sanitary inspectors, and a sprinkling of men from the building trades.

Auctioneers' Benevolent Fund.

The Incorporated Auctioneers' Benevolent Fund have just issued their fifty-first annual report and statement of accounts. The receipts from subscriptions during the past year amounted to £380. The grants (in addition to the annuities of £451 15s.) amounted to £258.

THE LONDON COUNTY COUNCIL.

AT the first sitting of the London County Council after the summer recess on Tuesday, under the chairmanship of Viscount Peel, the following, amongst other matters, were dealt with:—

Building Line in York-place.—Mr. Johnson asked the Chairman of the Building Act Committee where any attempt was made at negotiations to prevent the new buildings on the west side of York-place, adjoining the Marylebone-road, being erected in advance of the contiguous houses; and (2) whether the construction of the building would allow of a colonnade being made, and so ease the pressure on the traffic on the footpath.

Mr. Kingsley Wood said the buildings occupied a site formerly covered with buildings, and the old line of frontage had been adhered to, and there was, therefore, no ground for the Committee to negotiate on. The second matter was not one for the Building Act Committee.

Paving Loan.—Sanction was given to the Shoreditch Borough Council borrowing £4,300 for paving works.

School Sites.—The Education Committee reported that settlements had been arrived at for the acquisition of the following sites for schools purposes:—Wolverley-street, Bethnal Green; Belleville-road, Clapham; Meteor-street, Clapham; Oldfield-road, Hackney; Faroe-road, Hammersmith; Grafton-road, Islington; St. Paul's-road, Mile End; Woolmore-street, Poplar; Stanhope-street, St. Pancras.

Kingsway Site.—It was agreed to sell the freehold interest in the property at the corner of Wild-court and Kingsway to the Trustees of Great Queen-street Chapel for £30,000. The property has a frontage to Kingsway of about 98 ft. and to Wild-court of about 63 ft.

New Fire Station.—Bills of quantities were ordered to be prepared in connection with the conversion of the Bayswater fire sub-station into a full station.

Accommodation for Motor Lorries.—Two estimates amounting to £2,825 were passed for the erection of accommodation at Poplar and Kentish Town for motor lorries.

Paving Blocks.—It was agreed to allow Messrs. B. Lee & Sons, Ltd., to withdraw their tender for certain creosoted paving blocks, as they were unable to supply the materials owing to the war, and it was decided to invite tenders from selected firms for 260,000 creosoted deal paving blocks.

Extension of Greenwich Generating Station.—The Highways Committee submitted a proposal for certain additions and alterations at Greenwich Generating Station. The work consists of the provision of additional coal bunkers, workshops, and bricklayer's shop and store, observation tower, and accommodation for piermaster. The cost is estimated at £17,700. The matter was postponed for a week.

Serving with the Forces.—It was reported that the following from the Architect's Department were serving with the Forces:—One Army reservist; six in the Royal Naval Volunteer Reserve; fifty-eight serving in the Territorial Force at the outbreak of war; eight who had joined the Army, and sixty-four who had joined the Territorials since the war.

LAW REPORT.

Sequel to a Fall.

To his Honour Judge Howland Roberts, at Clerkenwell County Court, on Tuesday last week, an application for an award under the Workmen's Compensation Act was made by Mr. William Edward Swinden, general fitter, of the Grove, Crouch End, against Mr Fred Perren, builder, of Russell-road, Hendon.

Applicant stated that while engaged on some building work in Fitzwarren-avenue, Highgate, the ladder broke, and he fell a distance of 7 ft. or 8 ft. into a hole about 4½ ft. deep. His right leg was broken, and his back was injured. He was still unable to work as a result of the injuries. The leg that was broken was now an inch and a half shorter than the other. The accident happened on April 9.

Medical evidence was given, both for applicant and for respondent.

His Honour held that applicant was still incapacitated from following his employment, and made an award of 17s. 6d. per week from a date in August, when the compensation was last paid.

It was stated that at the time of the accident the applicant was employed by Mr. Fake, of Pellett-grove, Wood Green, to whom Mr. Perren had sublet the plumbing work of the houses in question. A third party notice had been served upon Mr. Fake, from whom Mr. Perren claimed to be indemnified against liability to pay compensation.

His Honour held that Mr. Perren was entitled, under the terms of the Act, to be indemnified by Mr. Fake, and made an award accordingly. So far as he (Judge Roberts) understood, the position taken up by Mr. Fake was that, had proceedings been taken against him under the Compensation Act, he would have been liable; but he would have a right to say that the accident was brought about by the negligence of some workman for whom Mr. Perren was responsible. That was a question outside the one before the Court that day. If Mr. Fake considered he had any rights against Mr. Perren, he must bring an action.

Applicant was allowed costs on Scale B.

NEW COMPANIES.

THE undermentioned particulars of new companies recently registered are taken from the Daily Register compiled by Messrs. Jordan & Sons, Ltd., Company Registration Agents, Chancery-lane, W.C.:—

PETER BAILEY & SONS, LTD. (137,804). Registered September 28. To acquire the business of brick, tile, and earthenware manufacturers and potters, now carried on by Messrs. George H. Bailey & H. H. Bailey at Heaton Mersey, as "Messrs. Peter Bailey & Sons," and business of potter now carried on by Mr. George Shaw at Beswick, as "The Beswick Pottery Company," also to enter into agreement. Nominal capital, £15,000 in £1 shares.

ÆGIS ENAMEL AND VARNISH, LTD. (137,797), 10 and 11, Lime-street, E.C. Registered September 28. Manufacturers or merchants of paint, varnish, enamel, chemicals, and oils. Nominal capital, £1,000 in 800 £1 Ordinary shares and 4,000 1s. Deferred shares.

NEW VIBRO-CONCRETE, LTD. (137,823). Registered September 30. To acquire business of Mr. Philip Yorke, at Roebuck-lane, Smethwick, Stafford, and carry on business of manufacturers of and dealers in concrete, cement, bricks, clay, chalk, pipes, tiles, stone, marble, slates, etc. Nominal capital, £10,000 in 9,500 £1 7 per cent. non-cumulative Preference shares and 10,000 1s. Deferred shares.

CUSTODIS, LTD. (137,827), 119, Victoria-street, Westminster. Registerd October 1. Chimney constructors, builders, contractors, merchants, and dealers in stone, sand, lime, bricks, timber, iron, steel, etc., and the business of brick, tile, and terra-cotta makers, electrical and mechanical engineers. Nominal capital £6,000 in 3,000 £1 "A" shares and 3,000 £1 "B" shares.

YALE LOCK COMPANY, LTD. (137,837), 10, Queen Victoria-street, E.C. Registered October 1. To enter into an agreement made between the Yale and Towne Manufacturing Company, of Stamford, Connecticut, U.S.A., therein called the "American Company," and this company, therein called the "English Company," and to carry on business carried on by the late Alfred John Tozer as "Yale Lock Company," at 10, Queen Victoria-street, E.C. Nominal capital, £3,000 in £1 shares.

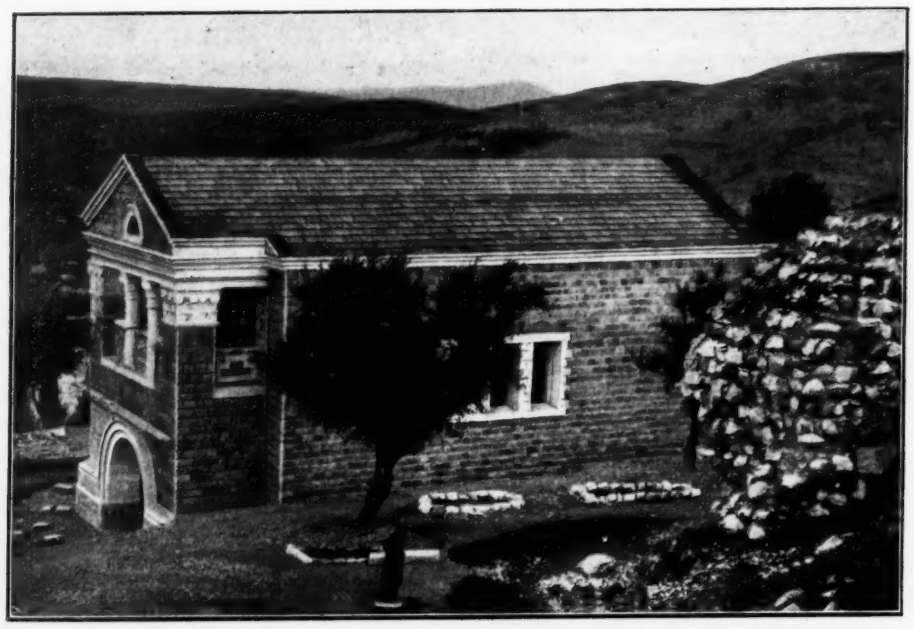
EDLINGTON (OAKLANDS) BRICK COMPANY, LTD. (137,856), Edlington, near Doncaster. Registered October 3. To acquire business of brick and tile manufacturers carried on at Edlington as the Edlington (Oaklands) Brick Company, and to carry on business of manufacturers of bricks, tiles, flues, pipes, pottery, china, terra-cotta, and ceramic ware, etc. Nominal capital, £16,000 in £10 shares.

FIFTY YEARS AGO.

Street Architecture in Melbourne.

THE local *Post*, an illustrated paper, in giving a view of new premises in Collins-street East, says:—It is only a week or two ago that we were celebrating *the thirteenth anniversary of the foundation of the Colony;* and when we look back a few years, and reflect upon the then dimensions of the city and the class and character of the buildings which formerly stood, we may be justly acquitted of hyperbole when we say that no city in the world has made such gigantic strides during a similar period as Melbourne has done; for not only has the city increased in its proportions, but the many fine and substantial buildings which now adorn our principal streets bear ample testimony to the progress which has been thus rapidly made. Any person who visited Melbourne ten years since and returned during the present year could not but be struck with the vast improvements which have been effected. In place of the rickety-looking wooden tenements which then existed there are now elegant and substantially-built edifices, many of them constructed with a uniform design, and these improvements are going on from week to week. In Collins-street, the Regent-street of Melbourne, this change is particularly noticeable. Collins-street East is as much devoted to the mercantile community as Collins-street West is the promenade of fashion.

[*** We give the above extract from the *Builder* of October 15, 1864.]



English Mission Church, Safed, Galilee.
Professor Beresford Pite, F.R.I.B.A., Architect.

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ILLUSTRATIONS.

Interiors, Reims and Beauvais.

WE give two interior views of Reims and Beauvais looking east, which we think have special interest at the present time.

English Church, Bucarest.

THE drawings show the church now in course of erection for the English community at Bucarest.

The walls are of local brick, with an economical use of stonework. The climate being extreme in winter and summer, double windows are provided and steam heating. The oak choir and chancel fittings are being made by Messrs. Elliotts, of Newbury. It was desired that a characteristic English type of design should be adopted. Her Majesty the Queen of Roumania, a daughter of H.R.H. the Duchess of Edinburgh, takes a personal interest in the building of this Church of England place of worship in the capital. The architect is Professor Beresford Pite.

English Mission Church, Safed, Galilee, Palestine.

THE photographs show the church of the Church of England Mission recently erected from the designs of Professor Beresford Pite in this interesting and remote city set upon a hill in Galilee, in the neighbourhood of the lake.

The design is related to the Early Christian type of Syrian building, and consists of a simple nave and apse with a portico entrance. It is built of local limestone on the hillside, where, in spite of the rocky formation, considerable difficulty was experienced in obtaining a uniform foundation.

The whole of the work was executed by local workmen, who retain traditional methods of masonry.

Queen's Park, Toronto.

WE illustrate two views of Messrs. Darling & Pearson's work at Toronto.

English Mission Church, Safed, Galilee.
Professor Beresford Pite, F.R.I.B.A., Architect.

MEETINGS.

FRIDAY, OCTOBER 16.

Institution of Mechanical Engineers.—First general meeting. 8 p.m.

MONDAY, OCTOBER 19.

University of London Extension Lectures (at the Victoria and Albert Museum).—Mr. Banister Fletcher on "Gothic Construction: Exemplified in English and French Cathedrals." 4.30 p.m.

TUESDAY, OCTOBER 20.

University of London Extension Lectures (at the British Museum).—Mr. Kaines Smith on "Greek Religion: The Gods of Knossos." 4.30 p.m.

THURSDAY, OCTOBER 22.

University of London Extension Lectures (at the British Museum). — Mr. Banister Fletcher on "Egyptian Temples." 4.30 p.m.

Society of Architects.—General meeting. 7.30 p.m. Lantern lecture on "Some Belgian Towns Affected by the War," by Mr. G. A. T. Middleton. 8 p.m.

University of London Extension Lectures (at the Victoria and Albert Museum).—Mr. Kaines Smith on "National Character in Art." 3.30 p.m.

FRIDAY, OCTOBER 23.

Royal Technical College Architectural Craftsmen's Society, Glasgow.—Mr. T. Whyte on "The Modes of Measurement." 7.45 p.m.

Royal Sanitary Institute.—Mr. Edward Willis on "Building Materials." 7 p.m.

BOOK RECEIVED.

FIRST-YEAR CARPENTRY AND JOINERY. By J. Ernest Marshall. (London: George Routledge & Sons, Ltd. 2s. 6d. net.)

HOUSE, SUSSEX.

A private house is in course of erection in Hartfield, Sussex, from the designs of Messrs. Cutts, Davis, & Boddy, Southampton-street, Strand, W.C. The builder is Mr. Charles Elcock, Hartfield. The tiles are by Messrs. James Brown, Ltd., Essex Wharf, Durward-street, Whitechapel, E.; the casements are by Messrs. J. L. Howard & Co., Taybridge Works, Lavender-hill, S.W.; and the glazing is by Messrs. James & Co., Hythe-road, Willesden, N.W.

CONSTRUCTION SECTION.

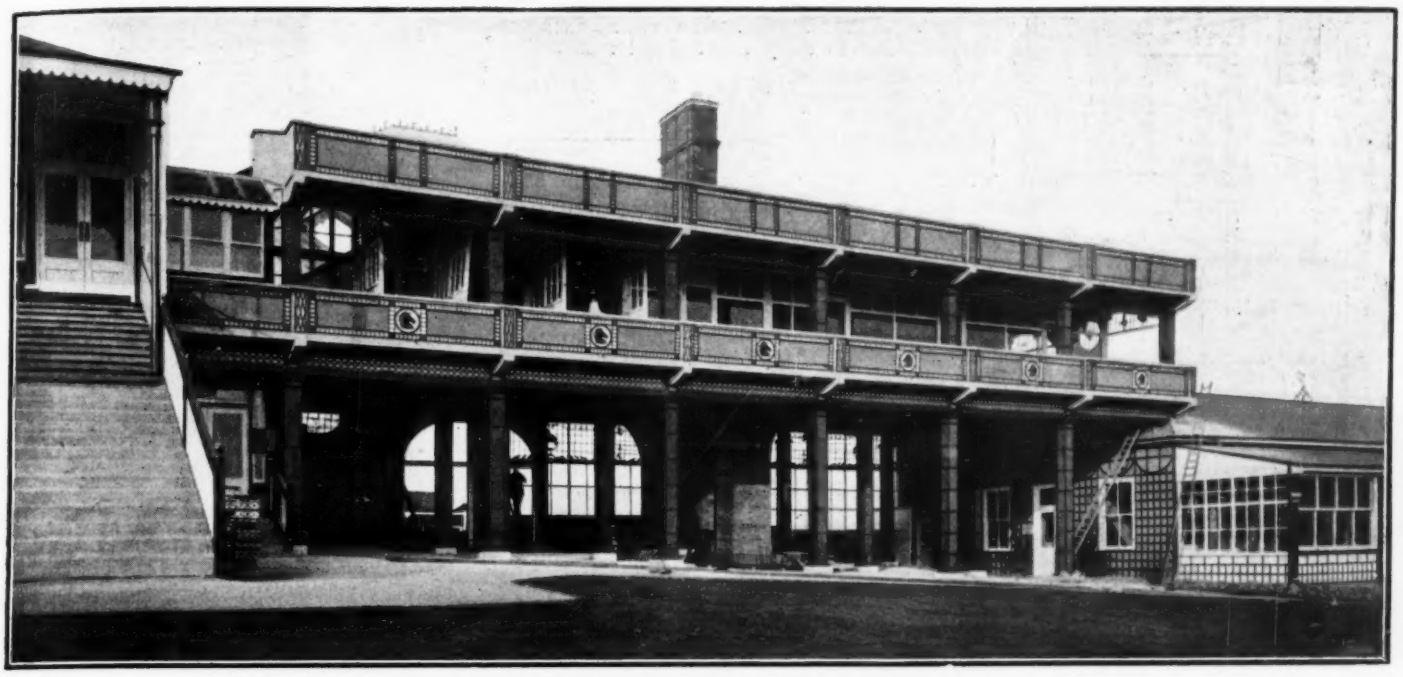

Fig. 1. Racecourse Stand, Cheltenham.
Messrs. Chatters & Smithson, F.R.I.B.A., Architects.

RACECOURSE STAND, CHELTENHAM.

THE stand described in this article was completed about twelve months ago, and it forms an excellent example of a race stand which has been considered architecturally as well as from the constructional point of view.

The architects were Messrs. Cha'ters & Smithson, F.R.I.B.A., of Cheltenham, who have been successful in producing a very pleasing structure, which is principally intended as a members' stand, but is also adapted for the use of royalty and other distinguished visitors who may attend the meetings. The position of the stand, in relation to the racecourse, is responsible for a rather unique feature in the arrangements for the spectators, as it is situated on high ground around which the course curves in such a manner that it passes away to the rear of the building, and consequently the upper tier consists of steps arranged to face both ways and permit a view of the racing from either side.

The length of the stand is 90 ft. and the width 44 ft. The ground floor is arranged as a court, enclosed on three sides only, with two large open fireplaces, placed back to back, in the centre of same. A wide staircase leads to the first floor and roof stand, and an entrance at the back of the court provides access from the club enclosure to the paddock. A general view of the finished structure is given in Fig. 1, and this shows the arrangement at the ground floor level and allows an idea to be gained of the general outside treatment.

The accommodation on the first floor includes a luncheon-room 40 ft. by 23 ft., this being finished with a barrel ceiling executed in enriched fibrous plaster. The walls and columns are finished with panelled and fluted wainscoting, and an ingle-nook is formed at one end. Balconies are arranged on either side of this room overlooking the racecourse and the paddock. This room has been provided for the committee and stewards, and the remainder of the first floor is devoted to private lunch-rooms, serving-rooms, boxes, and balconies.

The contractors for the whole of the structural work, which has been executed in reinforced concrete, were Messrs. William Moss & Sons, Ltd., of Loughborough, and the details of this reinforced concrete were prepared by their consulting engineer, Mr. H. M. de Colleville, A.R.I.B.A., of 48, Bedford-row, London, W.C., to suit the requirements of the architects. Great care was taken in the consideration of the structural members to render the stand as rigid and free from vibration as possible under the live load to which it is subjected, and several diagonal braces were introduced for this purpose. These are, however, carefully planned to come within the partitions and other places where they would not obstruct the view or interfere with the decorative treatment. The columns affording the main support are, generally speaking, arranged in four rows across the width of the building and in six main rows along the length, but certain other columns are provided to suit the planning, more especially at one end, where the outline is somewhat broken up by projecting portions. This spacing of the columns divides up the structure into bays about 14 ft. square, and this is the maximum span of the main beams. The foundations to the columns were carried down to a minimum depth of 4 ft. below the ground level and the size of the base varied from 3 ft. 6 in. to 4 ft. 6 in. square. These bases have a minimum thickness of 9 in. at the extreme outer edges,

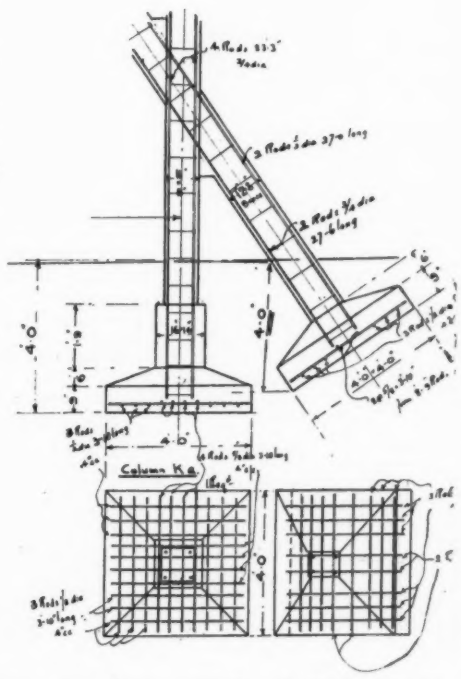

Fig. 2. Racecourse Stand, Cheltenham: Detail of Foundations.

increased by sloping up the concrete for another 9 in. to give a thickness of 18 in. at the point of intersection, with a block of concrete, usually about 16 in. square and 18 in. deep, formed at the bottom of the column shaft. The reinforcement consists of $\frac{5}{8}$-in. and $\frac{3}{4}$-in. rods in both directions in the lower surface, with a minimum cover of 2 in. of concrete to the lower rods. The bases to the diagonal braces are of similar type, formed at right angles to the axis of the brace, as illustrated in the detail in Fig. 2. In some cases the base to the brace and column adjoining are formed as one, where they occur sufficently near to permit of this being done. All the columns up to the first floor are 11 in. square, and they are reinforced with four lines of vertical reinforcement tied with links at 9-in. and 12-in. centres. This reinforcement consists of $\frac{3}{4}$-in. diameter rods, or Moss bars, the latter being placed with their webs on the diagonal lines joining the four corners. Above the first floor level the columns are reduced to 10 in. square, reinforced with four rods, each $\frac{5}{8}$ in. diameter.

The first floor is formed with reinforced slabs 4 in. thick with $\frac{1}{2}$-in. rods at 8-in. centres as main reinforcement and $\frac{1}{2}$-in. continuity rods in the upper surface where passing over the beams. The main beams have a span of about 14 ft., and secondary beams are introduced between the main beams to reduce the width of the panels to about 7 ft. These secondary beams are generally 14 in. deep and 8 in. wide, reinforced with one Moss bar in the lower surface, with stirrups throughout the length. The main beams vary in size according to their position, but the largest is 18 in. deep and 10 in. wide, reinforced with two Moss bars and stirrups throughout the length. The beams adjoining the front balcony are formed with a varying depth to suit the levels, which are arranged to give two 9-in. steps, the first leading down to a tread 3 ft. wide and the second down to the balcony 3 ft. 10 in. wide. These beams are 10 in. wide and reinforced with three Moss bars, and the soffits of the beams have a slight angle with the horizontal.

The balcony itself is 4 in. thick, reinforced with $\frac{1}{2}$-in. rods, and cantilevers 8 in. wide and with a maximum depth of 16 in. from the top of the slab are formed at each column for the support of the balcony, as seen in Fig. 3. Over each cantilever a small pier 10 in. wide and 6 in. thick is formed to divide the parapet wall into panels, this wall being 4 in. thick and 3 ft. high, with vertical and horizontal reinforcing rods having a

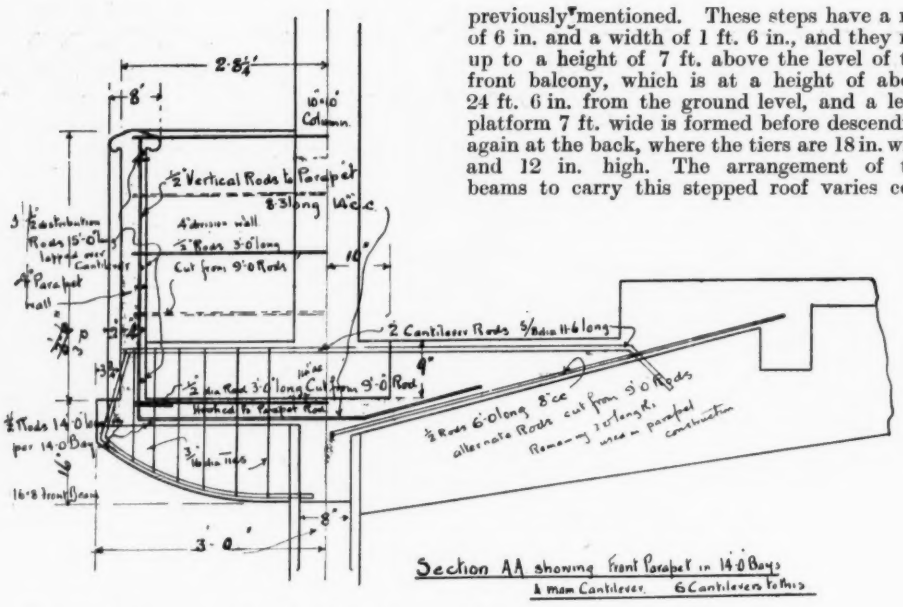

Fig. 3. Racecourse Stand, Cheltenham: Method of Supporting Front Balcony.

diameter of ½ in. The cantilever rods are carried from a point well back into the adjacent beam along the upper surface, and turned round into the lower surface and passed into the supporting columns. The capping to the parapet wall is also formed in concrete, this being 8 in. wide and 3 in. deep, and moulded.

The back balcony is 5 ft. 6 in. wide, and this is carried by beams running between the two outer rows of columns, and thus no cantilevers were required.

The second floor forms the roof stand, and this is stepped to form accommodation for spectators both at the front and back of the stand, as previously mentioned. These steps have a rise of 6 in. and a width of 1 ft. 6 in., and they rise up to a height of 7 ft. above the level of the front balcony, which is at a height of about 24 ft. 6 in. from the ground level, and a level platform 7 ft. wide is formed before descending again at the back, where the tiers are 18 in. wide and 12 in. high. The arrangement of the beams to carry this stepped roof varies considerably according to the position; in some cases the main beams are sloping and parallel to the pitch of the steps and in other cases the soffit is horizontal and the beam has a varying depth as the roof rises and falls. The tiers are formed with a minimum thickness in the soffit of 4 in., and this is reinforced with ½-in. and ⅝-in. rods parallel to the pitch with continuity rods where passing over the secondary beams. The latter occur under the edges of the landings and at intermediate points in the length to transmit the weight to the main beams. The back tier is formed in a somewhat different manner on account of the rise being greater, and here the treads are 3 ½in. thick, and each riser acts as a beam 5 in. thick, reinforced with one Moss bar in the lower surface. A typical section through the tiers is illustrated in Fig. 4, which will simplify the explanation if studied. The front projecting balcony is carried in a similar manner to that described for the first floor, and the parapet, which is 3 ft. 3 in. high, is also constructed on the same lines. The back parapet is formed by a reinforced concrete wall filling in between the outer row of columns, the latter being carried up to the top of the wall and there forming similar piers to those mentioned as occurring on the first floor balcony.

The braces, which are introduced to stiffen the stand, are all 12 in. by 8 in., and these are reinforced with four main reinforcing rods tied with links at 12-in. centres. The positions of these braces were governed by the internal divisions of the structure, as they were required to come within these latter, but despite the limitation they have been introduced in such a manner that their function is admirably carried out. A typical brace is shown in Fig. 5.

The stand is an excellent example of this class of structure, and, while the treatment has been carefully considered, the construction is of fire-resisting character, and will require practically no maintenance, which is of primary importance in such a building. The many collapses that have occurred with timber stands and the number that have been destroyed

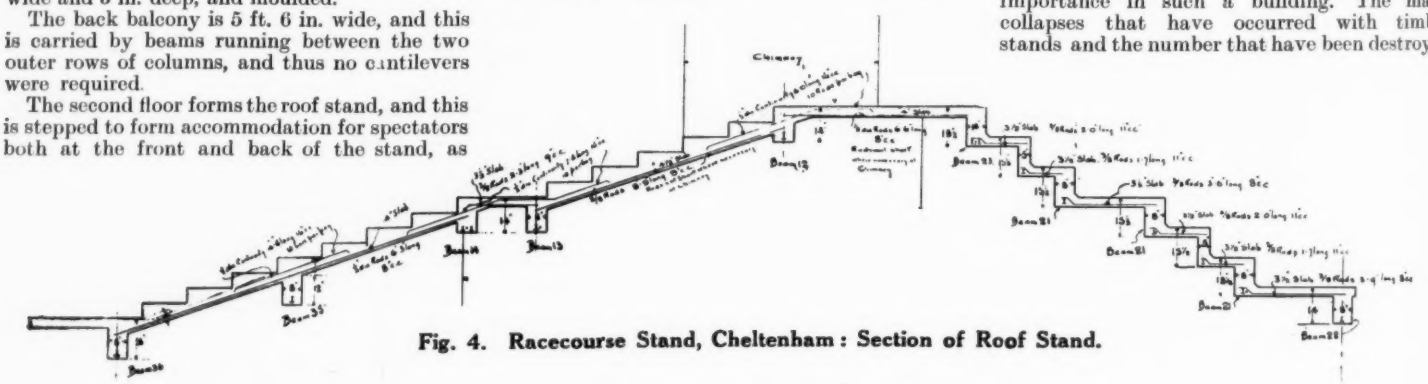

Fig. 4. Racecourse Stand, Cheltenham: Section of Roof Stand.

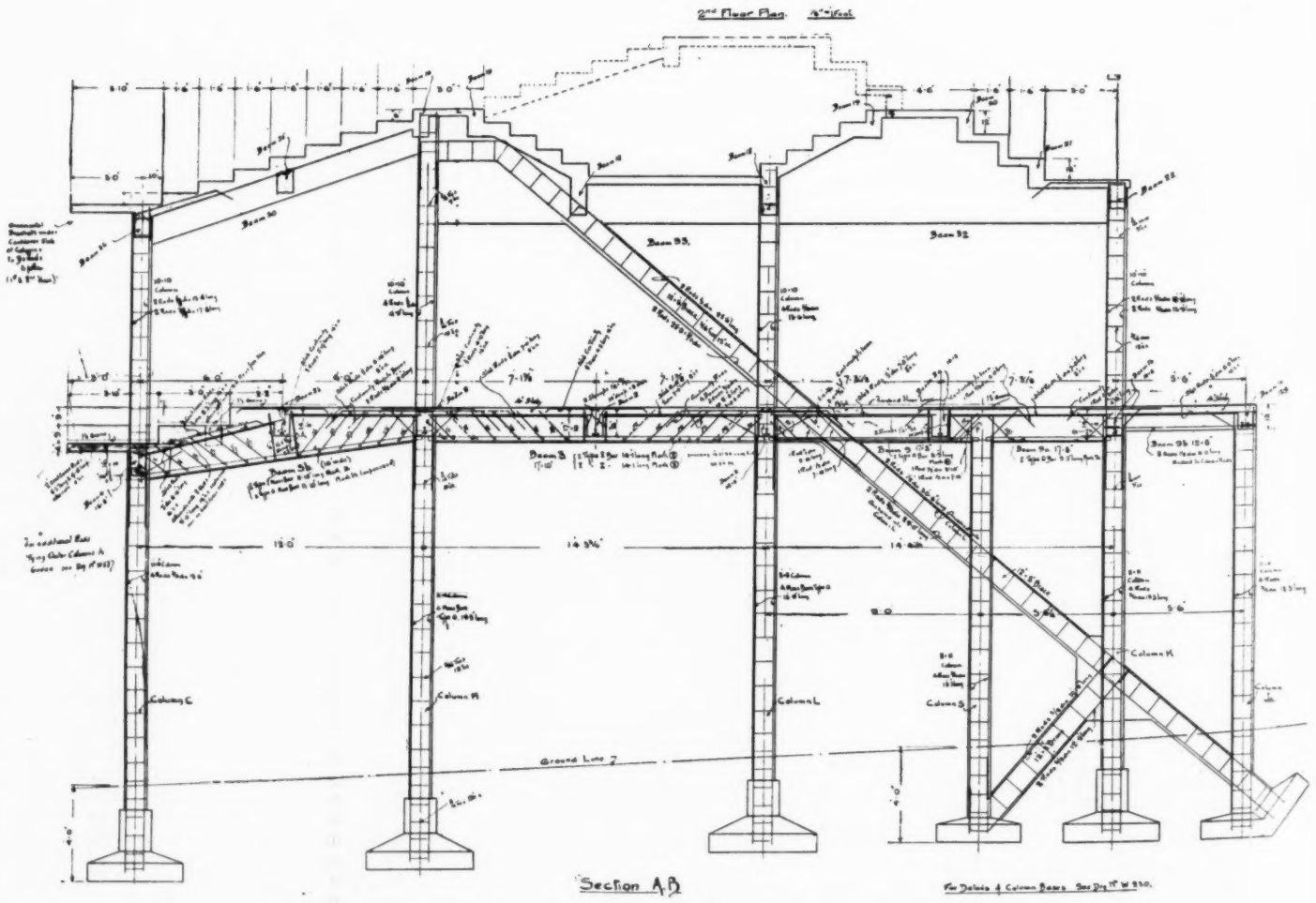

Fig. 5. Racecourse Stand, Cheltenham: Cross Section showing Bracing.

Fig. 6. Racecourse Stand, Cheltenham: View of Front Balcony.

Fig. 7. Racecourse Stand, Cheltenham: Interior View.

by fire has done much during recent years to popularise the use of reinforced concrete, and this material is undoubtedly the most suitable for this work, while the initial outlay entailed always compares favourably with other materials of equal strength and lasting properties.

CYLINDER BRIDGE FOUNDATIONS IN THE EAST, AND THE CONSTRUCTION OF THE SITTANG RIVER BRIDGE, BURMA RAILWAYS.

On the 5th inst. Mr. A. Stewart Buckle, M.S.E., read a paper before the Society of Engineers (Incorporated), the subject being "Cylinder Bridge Foundations in the East, and the Construction of the Sittang River Bridge, Burma Railways." The paper gives an account of the construction of the Sittang River bridge, the longest of any river bridge in Burma, having eleven spans of 150 ft. on cast-iron cylinders, of which work, with 52 miles of the Pegu-Moulmein Railway, connecting the ports of Rangoon and Moulmein, the author was executive engineer. The paper also gives some further experience of the author in cast-iron cylinder sinking in the construction of certain bridges on the recently completed Indo-Ceylon connection railway.

The Sittang River is subject to a tidal bore, which, fortunately, did not reach the bridge during the period of construction, but history shows that owing to changes in the estuary this was only a temporary respite, for at one time the bore did reach the bridge site, and it was foreseen that it would do so again, which it now actually does.

A comparison of the different merits of masonry or brick wells and cylinders is given, and it is shown how the well system is advantageous in many cases in the East, where half the river is dry for part of the year, and islands can thus be formed. The Sittang River being affected by the tide, however, and being never less than 24 ft. deep at lowest tide these conditions did not exist, and therefore cylinders were adopted.

The pile staging carrying the gantry for working the grab is described, and it is shown how the cylinders are floated out from the shore, and after being placed in position are sunk to the bed of the river and then kept in position by means of the staging, the problem of preventing a cylinder from going far out of its position being described.

The difficulties likely to be encountered owing to insufficient weighting of the cylinders are explained, and the advantage of an inner ring of masonry is shown, and also various other methods of weighting cylinders when required.

Favourable conditions for wells did exist in the west abutment, and therefore a 22 ft. diameter well was sunk instead of a pair of cylinders.

The collection of local stone for masonry and concrete and the manufacture of bricks at the site of the work is referred to, and also the transport of the 3,000 tons of steel and ironwork, together with plant, rolling stock, and permanent way, to the site of the bridge.

Perhaps the most interesting part of the paper, however, is the description of the floating out of some of the girders. This was necessitated by the unusual depth of water and in order to obtain more places for erecting different spans at one time. Each complete span, as floated out, weighed 100 tons, and the method of building up on the shore, removing out to deep waters, taking off to pontoons at their full and final height and placing in position on the bridge is described and illustrated.

The consulting engineers responsible for the design of the bridge were Messrs. Rendel & Robertson, of Westminster, and the Chief Construction Engineer of Burma Railways responsible for the work was Mr. G. Mills, M.Inst.C.E.

The work was done entirely by native labour and various native contractors, no European contractor being employed. The first cylinder was placed in position in October, 1905, and the bridge was opened for goods traffic in August, 1907.

THE BUILDING OWNER AS A GAMBLER.

The rank uncertainty of the present method of estimating continues to occupy the attention of the architectural and building fraternity and of those owners who do not seek to beat the contractor and material men. Referring to the lamentable conditions existing, one of our new correspondents, when voicing his opinions in reference to certain owners' well-known attitude of "heads I win, tails you lose," thinks this is the fundamental difficulty we have to contend with. It certainly seems difficult to demonstrate to some owners how a straight and accurate bill of quantities to estimate upon helps them to get better work, a square deal, and a satisfied contractor. It is the experience of those who have long been engaged in the practical advocacy of the quantity system in this country to find that, although the average owner will strenuously deny trying to get "something for nothing" out of a contractor, they, for the most part, really do this very thing. They will hire a certain type of architect, not altogether for his talent as an artist, but for the purpose of helping them get the best of the contractor. This is attempted robbery, from whichever way we may look at it. Can we wonder if, in self-protection, the contractor retaliates?

Such owners appear to argue in their own minds something like this: "I (the owner), holding a pack of marked cards, to be used *after* a contract is signed, must first put a number of bidders to work "gambling" with each other to see who shall have the privilege (!) of playing with me in the final. My standing in the community must be taken by the winner as a sufficient assurance that we two, when we play, will play a square game, whatever the previous players may have done between themselves. I (the owner) know something of the building business, and doubt if this contractor fellow knows enough to get ahead of me and my architect, and he surely will not think to keep a few cards up his sleeve! Even if he does, he cannot always select the right cards, because he will forget that I am already fixed so as to take most of the tricks any way, and so the game will be played almost as I direct. Suppose by chance my tricks are trumped too often and I am likely to lose! Is not the referee under the contract in my employ? What do I pay him for? He must protect me, for am I not the owner? I must not let my adversary win, notwithstanding his money is invested in my building and regardless of his practical knowledge, which must also be used to my advantage. Besides, I do not have to play the game every day. The next time I do I will look out for a different man—one belonging to my fraternity, one just starting in business and anxious to please preferred."

And this is how the building game is too often played. Common custom and convention compels a certain type among the unprivileged class of architects (those who are not altogether financially independent of clients) to follow those methods which lead to possible future business. That is but human nature, and the human element of self-interest is more often than not apparent. But if a clear detailed bill of quantities is once made the basis of the contract—*i.e.*, so much labour and material for so much money and no more (and no less)—then it will help to relieve the other and better type of architects, who do try to be fair to both contractor and owner, from embarrassing positions and decisions, and from otherwise acting in judicial capacities under building contracts, and which often accounts for the loss to them of business friends and ultimate loss of professional practice.—*Quantity Surveyor.*

CONSTRUCTION NOTES.

Wasteful Estimating. A Report prepared by the Illinois Chapter of the American Institute of Architects upon the problem of estimating by contractors under the present methods states that members of the Chapter investigated the office work of five representative contractors. They found that the average number of contracts estimated by each contractor in one year was twenty-two, the average number of jobs which he obtained from these estimates was ten. The average value of the time spent by the office force of each firm on each estimate, including additions by sub-contractors and material men, was $503. The Report points out that the cost of six bids on a building costing between $100,000 and $150,000 ran to over $3,000 that is, between 2 and 3 per cent. of the whole cost of the work. Perhaps in no other business to-day is so much unproductive work done at so high a cost. Recognition of the quantity system as a remedy for this evil is spreading and adoption of the measure is bound to come.

Advance Production Curves. We are all familiar with curves of production plotted as a part of the record of work done; but it is not so common to plot those curves *in advance* of the work done, and by their aid to smooth out inequalities in the demand for labour, and thus operate the whole plant more effectively. The Aberthaw Construction Company, Boston, has found it possible by this means to avoid letting men go temporarily during a lull in the job, to be followed by the hiring of a large force a week later, to rush some particular part of the work to completion. A long look ahead, aided by the plot, has resulted in keeping the force fairly constant for long periods. This makes the workman feel that his job is reasonably secure during the continuance of the building operation. And the lack of efficiency due to the sudden addition of numbers of untrained hands is at the same time avoided by spreading out the whole work more evenly over the entire period.

THE BUILDING TRADE.

BUILDING DEVELOPMENTS IN SURREY.—III.*

Miscellaneous Work.

TRAVERSING Surrey from east to west there are to be seen many works in progress which have not been mentioned in this series. James Allen's School for Girls is being extended from the designs of Mr. E. T. Hall, F.R.I.B.A., and Mr. E. Stanley Hall, A.R.I.B.A., the contractors being Messrs. F. & H. F. Higgs, Loughborough Junction. Mr. Stanley Hall is also the architect for the additions to the Dulwich Picture Gallery, which are being carried out by Messrs. George Parker & Sons, Sumner-road, Peckham, S.E. Messrs. W. J. Mitchell & Sons, Dulwich Village, are at work on a portion of Dulwich College. In Half Moon-lane a site has been secured for the Herne Hill Wesleyan Church Sunday-school.

Numerous houses are in course of erection on the Dulwich College Estate, and there will be in the near future much development of this property. Large tracts of land near Herne Hill are to be let as a whole or in part for building purposes, and the convenient position of this land makes it desirable. Denmark-hill, adjoining, was once the haunt of Ruskin, Bessemer, and other notable people, but the big houses are being pulled down and there is much rebuilding on a different scale.

On the Oaks Estate, Nightingale-lane, between Balham and Wandsworth, about fifty houses are being erected from the designs of Mr. W. Dudley Evans, Lavender-hill, S.W. A number of villa residences are shortly to be built on the Vine Cottage Estate, Upper Richmond-road, Barnes, the architect concerned being Mr. Francis Osler, A.R.I.B.A., Gray's Inn-square, W.C. In Roehampton-lane, Messrs. J. H. Adamson & Sons, Putney, are at work in connection with a building scheme arranged by Messrs. Chesterton & Sons, Cheapside, E.C. Messrs. Gall, Durlacher, & Emmett, New Bridge-street, E.C., are associated as architects with a building scheme at Barnes.

Messrs. Harold Bailey, F.R.I.B.A., and Mr. Douglas Wood, A.R.I.B.A., Sackville-street, Piccadilly, are making extensive additions to "Hill Side," West Horsley, and on the London side of Leatherhead the "Warren" estate is being developed for residential purposes through the agency of Mr. C. Osenton, of Leatherhead. Extensive additions are being made to St. Anthony's Hospital, near Nonsuch; and Messrs. Allen Fairhead & Son, Enfield, are at work on a new church at Morden. Messrs. Tubbs, Messer, & Poulter, Craig's-court House, Whitehall, are the architects for two houses at Weybridge now being built by Mr. W. J. Tarrant, of Byfleet. The Church of St. John, Woking, designed by Messrs. Tubbs, Messer, & Poulter, will be commenced soon, the contractors being Messrs. Norris & Co., Sunningdale. Messrs. Jarvis & Richards, Architects to the Surrey Education Committee, are engaged upon several works. Messrs. W. E. Blake, Ltd., Stevenage-road, Fulham, are building a house at Ewhurst from the design of Mr. Reginald C. Fry, Licentiate R.I.B.A., Clifford's-inn, E.C.; and Mr. Fry is also the architect for two houses and two garages at Camberley.

* Continued from page 343.

COST ACCOUNTING ON CONSTRUCTION WORK.*

SECTION VII.

Monthly Comparison of Best Performances.

FIG. 19 shows a statement we prepare monthly showing the unit labour costs of the three or four principal items of construction on all jobs during the preceding month. A copy of this sheet is sent to every one of our foremen and superintendents. This is not an essential part of our system, but it is awaited with great interest by our field superintendents and has proved a very useful factor in stimulating a general interest in the timekeeping and cost accounting work, and is an additional incentive to our men to try for low costs.

The costs shown on this statement are nearly always lower than our average costs, as they show the best work done month by month, and do not bear any preliminary expense or

* Continued from page 344.

ABERTHAW CONSTRUCTION COMPANY.

Principal Unit Costs for Month of October, 1911.

Concrete—Unload, mix and place.
N.B.—2 mixers on Job 941.

	Job No.	Cu. Yds.	Unit Cost.
Largest 6 days' run of concrete	917	313	$8·71
	941	2·205	·38½
	944	602	·62½
	946	558	·57
Largest 1 day run of concrete...	917	107½	·80½
	941	451	·38
	944	150	·54½
	946	233	·51½
Lowest day's unit cost—floors	917	96	·68½
	941	408	·31½
	944	16½	·31½
	946	132	·38
Month's average unit cost ...	917	700	1·17
	941	5 030	·59½
	944	1 418	1·42
	946	393	·84

Forms—Erecting only.

	Job No.	Sq. Ft.	Per 100 Sq. Ft.
Floor forms	917	45 628	$3·53
	941	291 016	3·92
	944	82 107	6·24
	946	24 568	7·10
Wall forms	917	None	None
	941	31 556	5·80
	944	3 855	9·59
	946	15 247	7·47
Column forms	917	3 725	3·17
	941	41 260	7·15
	944	11 494	9·08
	946	7 095	10·05

	Job No.	Tons.	Per Ton.
Placing Floor Steel (beam and slab)	917	82·18	$5·36
	941	886·5	4·17
	944	63·82	6·47
	946	37·00	6 85
Bend and Place Column Steel...	917	6·56	5·30
	941	14·33	2·84
	944	15·92	8·62
	946	7·33	14·71

Fig. 19.

Job No 1990 — ABERTHAW CONSTRUCTION CO. — Sheet No. 1

Final Statement of Costs.

	Quantities Estimated	Quantities Reported	Estimated Cost		Actual Cost		Saving	Loss
Concrete Labour on footings	246 c.y	264 c.y	1·20	246	1·14	301		
" " columns	169 "	169 "	1·51	254	1·01	171		
" " floors	690 "	655 "	1·00	690	1·00	662	37	
" " under S.O.	629 f.l.	634 f.l.	·15	95	·18	114		
" cinder concrete rubble				20				
" cinder concrete fill						262		
" laying screeds	125 c.y	127	2·00	250	2·06 Cross	326		338
Rub with carborundum				300		311		11
Plant Labour erect & dismantle				300		801		
" freight etc				150		112		
" rental				300		514		864
" Small tools & supplies				450		637		
Cement	2000 bbls	1972 bbls	1·35	2700	1·36	2682		
" tests			·03	60	·03	59		
" unloading				100		92		
Sand	520 c.y	501	80	416	·72	376		106
Crushed Stone	1400 tons	1290 tons	1·40	1960	1·16	1502		
" Screening sand & stone						546		
Cinders	1304 f		50	65	Labor 1·00 Mat'l 3	202		
" Concrete sundries				52				
Forms & footings labour	Sq ft 4280	2375	7·00	321	10·80	257		
" floor slabs	28618	27872	7·00	2005	3·58	997		
" wall beams	3918	4038	9·00	359	9·70	376		
" external columns	7300	6808	11·00	803	9·00	615		
" wall brackets	655		7c	39				
" internal col heads	Sub contract			771	Sub Contract	675 / 115	981	
" window sills	629 f	631	·15	94	·16	101		
Form Lumber, nails, oil etc				1070		1130		
Unloading, hauling lbr., cleaning & mill				50		221		
Detailing forms in Boston	Office			200	Not used			
				100		81		
Steel Reinforcement	46 T	46.5 T	37·00	1702	av. 43·80	2017		
" spirals	2.5 T	2.5 T	60·00	150	56·00	140		
" hooks				10				
" unloading	46.5 T		50	23				311
" wire & bolts etc				24				
" bend & place col. steel		26 T	8·00		8·00	218		
" " " rubble	46.5 T	19 T	8·00	388	11·20	193		
" " " Smith St		2.5 T	8·00		7·00	36		
Inserts	1000	1313	·10	100	·098	138		
" labour	1000	1313	·05	50	·034	46	23	
" billed as extra	313		15	47				
					Carried forward		1004	1630

FIG. 20

Job No 1990 — ABERTHAW CONSTRUCTION CO. — Sheet No. 2

	Quantities	Estimated Cost		Actual Cost.		Saving	Loss
First forward.						1004	1630
Brickwork labour	1200 c.f.	20	240	27½	332		
" material	28 M	4·20		9·00	256		
				Lime	42	8	
				Cement 1·46	23		
Hoisting & pushing obs work			50		49		
Metal lathed & plastered partition			54		37	17	
Repair old floors			250		172		
Fire Proofing			160		145	138	
Move Stairs			35		30		
Pipe Rail			50				
Miscellaneous past new work			400				
" " wrot			271		428	376	
Rocker bearing plates Labour on Misc ironwork			51				
			106		74		
Tunnel down			60	inc. frames	91		31
Steel Sash & glazing erection	5262 sq ft	·05	263	·052	268		5
Excavation	100 c.y Est'd	·50	50				
	533 c.y "	·80	442				
	Reported 438 c.y			1·70	745		86
Grading			100		10		
Sheet Piling	Lumber		350		218		
	Labour		150		205		
Clean up the job, clean glass etc			100		124		24
Travel, board, superintendence etc			300		295	5	
Liability Insurance			400		450		50
Contingencies & sundries			400		55	345	
						1883	1826
		Net gain on Estimate				$57	

FIG. 21

other incidental items. They will give some idea of what *can* be done under favourable circumstances, but would not be a safe guide for estimating future work.

SECTION VIII.

The Final Comparison.

Figs. 20 and 21 show the final comparison of estimated with actual costs. This is similar to the monthly statement (sect. VI.) and needs no further explanation as to the method adopted, but a brief notice of some of its chief features will be of interest.

The cost of laying wood screeds to receive top flooring was unexpectedly high. The bulk of it was done in one week at the close of the job, when the best of the men had been transferred elsewhere, and is a good illustration of the necessity of unceasing vigilance in superintendence to avoid sudden drops like this. The rest of the carpenter work was very well done, showing a saving of $944 on the forms. Plant continued to run high; 110 tons less stone was used than estimated, owing to its being extremely well graded and therefore economical in use. Cinders cost three times the estimated amount, owing to there being none available at the owner's plant and no other factories near that could supply us. Some of our cinders had to be teamed 4 miles.

(To be concluded in our next issue.)

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ABERYSTWITH.—Plans of alterations and additions to Lloyds Bank have been passed.

Amersham.—Plans passed by R.D.C.:—House, Gravel-hill, Chalfont St. Peter, for Mr. A. J. Duncan; two cottages, South Heath, Great Missenden, Messrs. H. & G. Wright; house, London-road, Chalfont St. Peter, Mr. F. Mead; house, Chesham Bois, Messrs. A. Mead & Son; house, Chalfont St. Giles, Mr. D. Ryder; house, Chesham Bois, Mr. H. Kennard; bungalow, Chalfont St. Giles, Mr. A. J. Axe.

Ashton-under-Lyne.—The E.C. have considered plans for the proposed elementary school, Mossley-road, and accepted those submitted by Messrs. Eaton, Son, & Cantrell, and have ordered them to be forwarded to the Board of Education for approval.

Atherstone.—The R.D.C. has decided to adopt a scheme, prepared by Dr. Lapworth, consulting engineer, in conjunction with Mr. H. J. Coleby, the Council's Engineer, for supplying the whole of the district with water from the new boring at Warton. The total cost of the scheme is estimated at £18,158.

Ballencrieff.—Plans have been passed by the Western District Committee of Haddington C.C. for thirteen houses for the Ballencrieff small holdings.

Barrow.—Plans passed:—Twelve semi-detached houses in West View-road, for the executors of Mr. T. Brown; two dwelling-houses in Park-drive, for Mr. J. S. Crewdson; chemist's shop on Walney Promenade, for the Barrow Co-operative Society, Ltd.; mission hall in Hibbert-road, for the Christadelphian Trustees.

Biggleswade.—The L.G.B. have sanctioned the R.D.C. borrowing the following sums:—£210 for purchase of land from Mr. Pym, £600 for purchase of land at Beeston and St. Neots-road, Sandy, and £6,300 for the carrying out of work in building cottages.

Birkenhead.—The T.C. have engaged Mr. T. T. Rees for a minimum period of three years to advise and assist them in connection with the improvement and reconstruction schemes for dealing with obstructive dwellings and schemes for the erection of working-class dwellings. It is proposed to build 400 houses on sites at the north and south ends of the borough, at £180 per dwelling, making a total amount required of £72,000.

Blackburn.—Plans passed:—Detached villa, Beardwood Brow, by Mr. Cyrus Field; two houses, Beardwood Brow, by Mr. Thomas Leaver; twelve houses, Whalley New-road and Cornelian-street, by Mr. Harry Smith; and two houses, Beardwood Brow, by Mr. A. E. Brown.

Bolton.—Plans passed:—Messrs. J. Ashworth, Ltd., new rope race in Holland-street; Messrs. T. E. Smith & Sons, alterations to farm at Breightmet-hill West; Earl of Ellesmere, new streets and levels and Messrs. Hughes Bros., ten houses in Normanby-street; Earl of Ellesmere, farm buildings at Bank House Farm; Mr. F. Hampson, shed, Tudor-avenue; Mr. J. Simpson, F.R.I.B.A., Kindergarten school, Hawthorn-road; Messrs. W. Tong & Son, alterations to Corporation Tavern, Waring-street; Messrs. Magee, Marshall, & Co., alterations at 219, Derby-street; Messrs. Bradshaw, alterations to premises, 134, Deane-road; Messrs. Potts & Hennings, extension to premises, Raphael-street; Mr. Sharples, alterations to premises, 17 and 19, Chapel-alley; and Westhoughton Co-operative Friendly Society, addition to shops, St. John's-road, Lostock.

Bournemouth.—Plans passed:—Six houses, Charminster-avenue, Mr. T. V. Oliver; additions, Kingsholme, Richmond Park-road, Mr. F. R. Broglia; three houses and shops, Alma-road, Mr. H. W. Lovell; extension of workshop, 74, Holdenhurst-road, Messrs. Andrews Bros.; additions, Studley, Wimborne-road, Mr. J. Wright; house and stable, corner Malvern and Parley roads, Mr. J. Francis; workshop, rear of Branksome-terrace, Poole-hill, Mr. W. H. Saunders; chapel, Hahnemann Home, the Committee; additions to workshop, Highgate, Heron Court-road, Mr. F. Holly; alterations to bank, Southbourne-grove, Lloyds Bank, Ltd.; additions, Rosemount, Markham-road, Mr. T. Hillier; additions, The Glen, Bengal-road, Mr. A. Collins; additions, Stourwood Lodge, Stourwood, Mr. A. Tipper; motor-house, Berwick-road, Mr. C. Johns; church-room, rear of Christ Church, Alumhurst-road, the Committee; motor garage, Moorcourt, Cavendish-road, Mr. G. E. Ede; additions, house, Rutland-road, Mr. A. Hunt; house, Stroudenroad, Mrs. E. King; additions, Rothenfels, Bodorgan-orad, the Rev. C. A. Phillips; house, Firbank-road, Mrs. E. Webster; house, corner Wimborne-road and Moorfield-grove, Mr. A. Vine; additions, Knyveton, Bath-road, Mrs. Oliphant; alterations, 50, Old Christchurch-road, Messrs. Barclay & Co.; house, Heatherlea-road, Mr. A. Hives; workshops, Oxford-road, Messrs. G. Shears & Sons; house, Beechwood-avenue, Mr. F. W. Benyon; additions, Holly Lodge, Harcourt-road, Miss Kenny; two houses, Wynyard-road, Mr. W. W. Baker; alterations, 2, Dorchester-chambers, Yelverton-road, Mr. Tilney Barton; house, Malvern-road, Mr. J. Francis; additions, Doverscourt, Cambridge-road, Mr. A. Holloway.

Braintree.—Plans for the erection of an iron building for Messrs. Lake & Elliot at Chapel Hill Foundry, and for a house at Skitshill, for Mr. H. G. Pugh, have been passed.

Brentwood.—The C.C. have approved the erection of a medical officer's house at the Asylum, at a cost of £1,250.

Bromley.—Plans passed by T.C.:—Mr. C. H. B. Quennell, additions, Orchard House, Oaklands-road; Mr. A. W. Poingdestre, house, London-lane; Mr. J. W. Brown, boiler-house, Chatterton-road; Mr. P. Coad, house, Ronalds-road; Mr. F. G. Crickett, three cottages, Farwig-lane; Messrs. J. C. Arnaud & Sons, redrainage, St. Winnows, 5, London-road; Mr. A. J.Bartlett, motor-house, 118, London-road; Mr. F. G. Crickett, paint shop, 2a, Tylney-road; Messrs. Crosley & Son, redrainage, Fairlie, Oaklands-road; Mr. A. J. Style, rebuilding stable and coachhouse, Anglesea Arms Public-house, Palace-road.

Cambuslang.—Official intimation has been received that the Treasury has voted the necessary amount of money for the erection of a commodious new post-office at Cambuslang. A central site, adjacent to Cambuslang railway station, has been acquired in Bridge-street, and the erection of the buildings is to be proceeded with as soon as possible. The P.C. have approved a scheme by Mr. J. Lockhead, F.R.I.B.A., for the reconstruction of the combination poorhouse, at a cost of £14,000.

Chippenham.—The T.C. have passed plans, submitted by Mr. Fogg, for four cottages to be built by Messrs. Syms & Sons, in Wood-lane.

Colne.—Plans passed:—Additions to premises in Albert-road, for Mr. D. Robinson; four houses in Langroyd-road, for Mr. R. Whiteoak; alterations to Commercial Hotel, Keighley-road, for Messrs. Grimshaw, Ltd.

Coventry.—Plans passed:—Two houses, Bray's-lane, Mr. G. W. Huggett; alterations to premises, Dale-street, for the Triumph Cycle Company, Ltd.; additions to Sherbourne House West, Butts, for the Committee of the Young Women's Christian Association; Sunday-school, etc., Foleshill-road, for the St. Paul's Church Sunday-school Committee; four houses, Harefield-road, for Mr. C. A. Anelay; additions to factory, Raglan-street, for Mr. F. T. Jackson; conversion of premises into club and institute, Foleshill-road, for the Amalgamated Society of Engineers; seven houses and house with shop, Clay-lane, for Mr. T. Dalton; store shed, Spon End, for the Coventry Chain Company, Ltd.; eight houses, Bray's-lane, for Mr. C. A. Anelay; alterations, etc., No. 38, Cross Cheaping, for Messrs. Foster Bros., Ltd.; additions to shop premises, corner of Northey-road and Station-street West, for Mr. W. G. Chaplin; workshop, etc., off Grove-street, for Mr. A. Hall; extensions to factory, Cash's-lane, for the Standard Motor Company, Ltd.; three houses, Stoney Stanton-road, for Mr. T. Chillingworth; ten houses, Ludlow-road, for Mr. T. Seal; two houses, St. Andrew's-road, for Mr. C. F. Woodall; nineteen houses, Ransom-road, for Mr. L. Boyce; thirteen houses, St. George's-road, for the executors of the late Geo. Storer; two houses, St. Paul's-road, for Messrs. H. Goode & Son; alterations to the Board Inn, Cross Cheaping, for Mr. J. Horton; extensions, White Friars'-lane, for the Coventry Swaging Company, Ltd.; alterations, Old Star Vaults, Earl-street, for Messrs. Phillips & Marriott, Ltd.; house, Lowther-street, for Mr. A. Jeffs; foundry off Grove-street, for the Phœnix Foundry Company; additions to school, Little Heath, for the Coventry E.C.; alterations, No. 139, Far Gosford-street, for Mr. J. W. Clarke; house, Belvedere-road, for Mr. J. L. Aldridge; additions to No. 26, Webster-street, for Mrs. Head; packing-room, off Much Park-street, for Mr. H. E. Hammerton; additions to Frederick Bird School, Swan-lane, for Coventry E.C.; additions to house, Broadway, for Mr. J. Twigg, sen.; timber shed, rear of Vecqueray-street, for Mr. H. Burbidge; extension to foundry, Newdigate-road, for Mr. C. F. Barker.

Crompton.—Plans passed for alterations at the Bull's Head Inn, Grains Bar, for Messrs. Gartside's Brewery; and confectioner's shop in Milnrow-road, for the Crompton Co-operative Society.

Darlington.—Plans approved:—Mr. T. Dickinson, house in Harris-street; Messrs. T. L. Nelson, showrooms in Victoria-road; Mr. A. H. Earnshaw, house in Neasham-road.

Diss.—Plans passed by U.D.C.:—Misses Hammond, residence, Walcot-road; Mr. Marcus Nurse, extension to show shop, Victoria-road.

Driffield.—A L.G.B. inquiry has been held into an application by the East Riding C.C. for sanction to borrow £13,425 for the provision of an isolation hospital at Great Driffield by the East Riding Hospital Committee.

Dudley.—Plans passed:—Mr. Wm. Hipkiss, dwelling-house, Northfield-road, Netherton, Dudley; Mr. F. H. Jennings, dwelling-house, Cinder Bank, Netherton, Dudley; Mr. J. Whitehouse, additions to dwelling-house, 42, Belper-row, Netherton, Dudley; Mr. T. Price, two dwelling-houses, Dudley Wood-road, Netherton.

Ealing.—A L.G.B. inquiry has been held into the application of the T.C. to borrow £5,500 for the erection of working-class dwellings.

Easington.—Pans passed by R.D.C.:—twenty-six houses at Backhall, for Messrs. Lawson and others; six houses at Easington, for Mr. L. Page; and four houses at New Seaham, for Mr. Curry.

Elland.—Extension at Rose Mount Works, for Messrs. R. Dempster & Son, Ltd.

Essex.—The C.C. have decided to build fifteen pair of cottages for roadmen; to sink a second borehole and construct waterworks at Severalls Asylum, at a cost of £2,630; and have passed plans for altering and enlarging Black Notley Hospital, at an estimated cost of £1,520.

Exeter.—The L.G.B. have held an inquiry respecting an application by the T.C. for sanction to a loan of £4,100 for the widening and improvement of Haven-road and Water-lane.

Farnham.—The U.D.C. has approved of a proposal to erect a porter's lodge and a discharging block at the Joint Isolation Hospital.

Finchley.—Plans passed by U.D.C.:—Two houses, Ravensdale-avenue, submitted by Mr. W. Crosby; additions, Woodside Park-road, at Hill Side, submitted by Mr. J. H. Smart; house, Queen's-avenue, submitted by Mr. F. G. Huggins; storehouses and stables, Long-lane, submitted by Messrs. C. Halls & Sons; and four houses, Midholm, Addison-way, Hampstead Garden Suburb, submitted by the Oakwood Tenants, Ltd.

Foleshill.—Plans passed by R.D.C.:—Ten houses, for Messrs. J. Magson & Son, Heath-road, Bedworth; seven houses, for Mr. W. Johnson, M.P., Bulkington-lane, Bedworth; four houses, for Mr. T. W. Roulston, King George's-avenue, Foleshill; one house, for Mr. A. Ward, Church-road, Foleshill; one house, for Mr. H. Whiteman, Benthall-road, Foleshill; additions to house, for Mr. G. Ensor, Keresley.

Gosport.—Grove-road School is to be enlarged, at an estimated cost of £4,500.

Harwich.—The sanction of the L.G.B. has been received by the T.C. to borrow £2,140 for the erection of workmen's houses.

Hazel Grove.—Plans passed by U.D.C.:—House, for Mr. R. Gilbert, The Crescent, off Ladythorne-road; extension to Village Hall, Bramhall; extension to house, Oak Cottage, Bramhall Moor-lane; house, for Mr. Unsworth, Thorn-road; house, Mr. J. Walker, Offerton-lane.

Hessle.—The U.D.C. have adopted a £1,000 scheme for the laying out of a recreation ground.

Hull.—The T.C. have adopted the housing scheme of the Sanitary Committee, involving the clearing of the New George-street area. By this scheme under the Housing and Town Planning Act, 252 houses are to be provided, at a cost of £67,150; the site is estimated to cost £36,000, and the street works £4,120.

Ivybridge.—The proposal of the U.D.C. to borrow £4,000 for purposes of water supply has been the subject of an inquiry by the L.G.B.

Kidderminster.—Sanction of the L.G.B. has been given to the B.G. to purchase land at Sutton Common for children's homes, and plans are to be prepared.

Kingstown.—The L.G.B. have held an inquiry into the application of the U.D.C. for a loan of £7,900 for the erection of thirty-six houses for the working classes at Sallynoggin. No objection was received to the scheme.

Lancaster.—Plans passed:—Detached dwelling-house on the Eden Park Estate, for Messrs. R. Baines & Co.; additions to outbuildings at No. 1, Cork-road, for Mr. James Riley.

Leicester.—The B.G. have decided to carry out extensions at North Evington Infirmary. The scheme provides for an additional story over the east and west wings of the rear portion of the administrative block, to provide further accommodation for nurses and servants, at a cost of £3,500; a hospital block to accommodate up to 100 children and ten nurses, £10,000; a connecting corridor, £1,300; a recreation-room to seat 200, with subsidiary rooms, £3,400; an operating-room, £550; a clinical-room, £240, making a total of £18,990.

Lincoln.—Plans approved:—Messrs. S. & R. Horton, new street, Jellicoe-avenue, North side of Monks-road; Lincoln Picture House Company, Ltd., of new picture house, High-street.

Macclesfield.—A new chimney is to be built at the Corporation baths, at an estimated cost of £358.

Moira.—New power-house and engine-room, for the Moira Colliery Company, at the Marquess Colliery.

(Continued on page 369.)

* See also our list of Competitions, Contracts, etc., on page 370.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

—	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Aberdare	9	—	9	9	—	9	7½	6½	6½	6½
Accrington	9½	9½	9	9	9	9	8½	6½	6½	6½
Altrincham	9½	10	10½	10	8½	10	9	6½	6½	6½
Ashton-under-Lyne	10½	10½	10	10½	9	10	9	6	6	6
Barnsley	9½	9½	9½	9½	9	8½	8	7	7	7
Barrow-in-Furness	9½	10	9½	9½	9½	9¼	9½	7	7	7
Barry	9½	9½	9½	9½	10	—	8½	6	6	6
Bath	8½	8½	8½	8	7½	9	7½	5½	5½	5½
Bedford	8	7½	7½	8½	—	7½	6½	5	5	5
Birkenhead	11	11	11	11½	11	8	9½	7	7	7
Birmingham	10½	10½	10½	10½	9	11	9	7½	7½	7½
Bishop Auckland	9	9	9	9	10	10½	7½	6	6	6½
Blackburn	10	10½	10	9½	9½	9	9½	6½	7	7
Blackpool	10½	9½	9½	9½	8½	9½	8½	6	6	6
Bolton	10	10½	10	10½	9½	9	8½	6–7	6–7	6–7
Bournemouth	8½	8½	8½	8½	8½	10	8	6	6	6
Bradford	10	10	9	9½	9½	8½	8½	6	7	7
Bridgwater	6½	6½	6½	6½	6½	10	6	7	4	4
Brighton	8–9	8½	8½	8½	—	—	7	6	6	6
Bristol	10½	10	10	10	—	10	9½	6	7	7
Burnley	9½	9½	9½	9½	8	9	9½	6½	6½	6½
Burton-on-Trent	9	9	9	9	8½	9	9½	6	6	6
Bury	10½	10½	10	9	9½	9	8½	6	6	6
Cambridge	9	8½	8½	9	9	10	9	6	6	6
Canterbury	8½	8	8	10	—	8½-9	7	6½	5½	5½
Cardiff	9½	9½	9½	9½	9½	9½	6½	5½	5	5
Chatham	8	9	9	9	9	9	8½	6½	6½	6½
Chelmsford	8	7½	8	9	—	7½	7	6	6	6
Cheltenham	8½	8½	8½	8½	8	8½	6½	5	5	5½
Chester	9½	10	9½	9½	9½	9½	8	5½	5½	5½
Chesterfield	8½	9	8	9	9	8½	8½	5½	5½	5½
Colchester	8	8½	8½	9	9	9	7½	6½-6½	5½	5–5½
Coventry	9½	9½	9½	9½	9½	8½	6	5½	5½	5½
Crewe	7	8	7½	9	8	9	8½	5½	6½	7
Darlington	9½	9½	9	9½	8	9½	7½	5	5½	6
Derby	9½	9½	9	9½	10	9	8½	6½	6½	6½
Doncaster	9½	9½	9	9	9	9	8	6½	6½	6½
Dudley	8½	8½	9	8½	9	9	8	6½	6½	7
Durham	9	9	9	9	8½	8	7½	5½	5½	5½
East Glamorgan and Monmouthshire Valleys	9	9	9	9	—	—	8	6	6	6½
Exeter	8	8½	8	8	7½	7	6½	6½	6½	6½
Folkestone	8½	8½	8½	8	8½	7-7½	5½	5½	5½	5½
Gloucester	8	8½	8	7½–8	8	8	6	6	6	6½
Grantham	8	8	7½	—	7½–8	7	6½	5	5	6
Grays	—	10	10	9	—	9½	8½	5	5	5
Grimsby	9	9	9	—	9	8	8½	7	7	7
Great Yarmouth	8	8	8	9	8	8	8½	7	7	7
Halifax	9½	9½	8	8½	8	8½	6½	5	5	5
Harrogate	9½	9	9	8½	8½	9	8½	7	7	7
Hartlepools	9	10	9½	9	8½	8	8½	5	5	—
Hastings	8½	8	8	8½	8	8	8½	6½	6½	6½
Hereford	8	8	7½	8½	8	8	9	6½	6½	6½
Huddersfield	9½	9½	9	8½	8½	8	7	5½	5½	7½
Hull	10½	10	10	9	9	10	8	6½	6½	5½-6
Ipswich	8½	8½	8½	9	9	10	9½	6½	6½	5½
Lancaster	10	10	9	9	8½	10	8½	6½	6½	6½
Leamington Spa	9	9	9	9	9	9	8½	7½	7½	7½
Leeds	10	10	10	8½	8½	9	9	6	6	6
Leicester	9½	9½	10	10	9	9½	9½	5½	5½	5½
Lincoln	9	8½	10	10½	9	9½	8½	6	6	6
Liverpool	11	11	11	11	8	10½	11	7	7	7½
Llanelly	9½	9½	11	8½	9	9	8½	7½	7½	7½
London	11½	11½	11½	11½	9	9	1s.	8	8	6½
Loughborough	9	8½	8½	9	9	9	8½	5½	5½	5½
Luton	9½	8½	8½	9	9	9	8½	5½	5½	5½
Maidstone	9	9	9	9	10	—	9	6	6	6
Manchester	10	10½	10½	8½	—	8½	8½	6½	6½	7½
Mansfield	8½	9	8½	9½	8½	8½	8½	6	6	—
Merthyr Tydfil	9½	9½	9½	9½	10	10	8½	6½	6½	6½
Middlesbrough	9	10	9½	10	10	10	8½	6½	6½	7
Newcastle-on-Tyne	10	10	10	10	10	10	9½	7	7	7½
Newport, Mon.	9½	9	9½	9½	8½	10	8½	6½	6½	6½
Northampton	9	9	9	9½	8½	9½	8½	6½	6½	6½
Norwich	8	8½	8½	9	9	9	8	6	6	6
Nottingham	10	10	10	10	9½	10	8½	6½	6½	6½
Oldham	10½	10½	10	10	9½	10	9	6½	6½	6½
Oxford	9	8½	10	10	9	10	9	6	6	6
Plymouth	9	9	8½	8½	9	10	9½	6	6	6
Pontypridd	9	9	9	9	9	9	9½	6	6	6
Portsmouth	9½	9½	9½	9½	9	9	9½	6	6	6
Preston	10½	10½	10	9	9	10	9	6	6	6
Reading	8½	9	10	9	9	10	9	6	6	6
Rochdale	10	10½	9	9½	9	9	9	6	6	6
Rochester	8	9	9	9	9	9	9	6	6	6
Rugby	8½	8½	9	9	9	9	9	6	6	6
St. Albans	9	9	9	9	9	9	9	6	6	6
St. Helens	9	9½	9	9	9	9	9	6	6	6
Scarborough	8½	9	9	9	9	9	9	6	6	6
Sheffield	10½	9½	10	9½	9	9	9	6	6	6
Shrewsbury	8½	8½	8½	9	9	9	9	6	6	6
Southampton	8½	9½	9½	9	9	9	9	6	6	6
Southend-on-Sea	9	9	9	9	9	9	9	6	6	6
Southport	10	9½	9½	9½	9	9	9	6	6	6
South Shields	10	10	10	10	9	9	9	6	6	6
Stockport	10½	10	10	10½	9	9	9	6	6	6
Stockton-on-Tees	9	10	9½	10	9	9	9	6	6	6
Stoke-on-Trent	9	9½	9	9	9	9	9	6	6	6
Stroud	7½	7½	7½	7½	9	9	9	6	6	6
Sunderland	10	10	10	10	9	9	9	6	6	6
Swansea	9½	9½	9½	9½	9	9	9	6	6	6
Taunton	7	7	7	9	9	9	9	6	6	6
Wakefield	9½	9½	8½	9	9	9	9	6	6	6
Walsall	9	8½	9	9	9	9	9	6	6	6
Warrington	8½	9½	9½	9½	9	9	9	6	6	6
West Bromwich	9½	9½	9½	9½	9	9	9	6	6	6
Wigan	10	10½	9½	9½	9	9	9	6	6	6
Windsor	9	9	9	9	9	9	9	6	6	6
Wolverhampton	9½	9½	9½	9½	9	9	9	6	6	6
Worcester	8½	9½	9	9	9	9	9	6	6	6
York	9½	9½	9	9	9	9	9	6	6	6

The mason's rate given is for bankers; fixers usually ½d. per hour extra.

WAGES IN THE BUILDING TRADE.

Darlington.—At the quarterly meeting of the Northern Centre Board of Conciliation an appeal was heard from the joiners of this district. The men asked for an advance in wages of 1d. per hour (9d. to 10d.) on the grounds that the district was receiving less than the surrounding towns of Middlesbrough, Stockton, Hartlepools, and Thornaby, and they considered that as the district was in competition with these towns they ought to be receiving an equal rate of pay. The operatives assured the Board that trade was fairly brisk. On behalf of the employers it was intimated that they could not see their way to concede the application on the grounds that the state of trade did not warrant same. The operatives were conceded an advance of ½d. per hour in 1912, and the employers claimed that any advance in the cost of production would to some extent stop building operations in the district. The Board decided: "That the wages of the Darlington operative joiners be advanced ½d. per hour as and from March 1, 1915."

Manchester.—At the recent quarterly meeting of the Northern Centre Board of Conciliation it was intimated that some difference of opinion had arisen upon the decision of the Board in reference to the Manchester joiners' and bricklayers' boundary given on November 26, 1913. On behalf of the bricklayers the attention of the Board was called to the fact that at the said meeting they made a statement to the effect that they would be prepared to accept the Board's decision in the definition of the joiners' boundary as applying also to the bricklayers, and claimed that the decision of the Board for the inclusion of the district of Prestwich, in the Manchester area, equally applied to the Manchester bricklayers' rules. On behalf of the employers it was stated that, whilst the bricklayers may have made such a suggestion, they did not make the same prior to the decision of the Radcliffe boundary. The employers intimated that they had at the time signed rules with the operative bricklayers which defined their boundary to be Radcliffe, Whitefield, and Prestwich, and claimed that the Board had no jurisdiction in disturbing these rules, seeing that notice of alteration had not been received by them. After some consideration the Board decided:—"That seeing the rules of the employers and operative associations of Radcliffe and district provide for an area covering Radcliffe, Whitefield, and Prestwich, and seeing that no notice had been tendered to terminate such a radius, the decision of this Board in reference to the joiners' boundary cannot apply to such district."

Nottingham.—A meeting of the Nottingham Building Trades Conciliation Board was held on October 8, to consider the stonemasons' request that during the shortened hours on account of the war machinemen should only work the same hours as the masons. After full discussion the Board decided as follows:—"That no master mason shall employ his machines more than one and a half hours per day over and above the reduced hours of working in consequence of the war, and that a very strong recommendation go from this Board that employers will not use the overtime rule any more than is absolutely necessary until the present time of restricted hours has passed. Overtime rates to be paid for all time worked over and above the time arranged on August 17, 1914. It is understood that there shall be no restriction as to the use of saws."

Oldham.—The appeal of the bricklayers' labourers and plasterers' labourers for an advance in wages was heard at the recent quarterly meeting of the Northern Centre Board of Conciliation. The application was for an advance of 1d. per hour, bricklayers' labourers 7d. to 8d., and plasterers' labourers 7½d. to 8½d. The Board heard witnesses representing the employers and the labourers, and after careful consideration of the evidence decided:—"That the wages of the bricklayers' and plasterers' labourers for Oldham and district remain unchanged."

Stockport.—At the recent quarterly meeting of the Northern Centre Board of Conciliation an appeal was heard from the stonemasons of this district. In the absence of the operatives' witnesses, who were the appellants, the employers were asked to state their case as to why the advance should not be conceded, and they stated that it was an unwritten rule in the Stockport district that the wages should be advanced accordingly with the Manchester operatives, and that in Manchester the men were conceded the last advance on May 1, 1914, when the Stockport operatives' wages were advanced in compliance with the unwritten rule. At that time they were under notice from the operatives for an advance of 2d. per hour, and it was somewhat surprising to the Stockport employers when the operatives persisted in their application in requesting an advance of 1½d. per hour over the Manchester rate, and the very fact that their witnesses were not in attendance, the employers felt, was an admittance that they were not serious in their demand. The Board decided:—"That the application of the Stockport operative stonemasons for an advance of 1½d. per hour be not entertained, and that the wages remain unchanged."

INFIRMARY PROPOSAL, BRADFORD.

A Local Government Board inquiry has been held at Bradford into the application of Bradford Corporation for leave to borrow £100,000 for the purpose of acquiring the site and buildings of Bradford Royal Infirmary and making a capital contribution towards the provision of new infirmary accommodation. It was stated that the new infirmary would cost £200,000.

PROPOSED NEW BUILDINGS.

(*Continued from page 367.*)

Motherwell.—The T.C. have formulated a housing scheme on the cottage system, and let the contracts for proceeding with the work. The total cost is estimated a £15,500.

Much Hadham.—Plans have been passed by the R.D.C. of a bungalow for Mr. W. Barr, near Dane Bridge, Much Hadham; and for a garage at Grove Lodge, Sawbridgeworth, by Mr. G. L. Thurgood. The sanction of the L.G.B. to the borrowing of £830 by the R.D.C. for the purchase of land and the building of four cottages at Little Hadham has been received.

Newquay.—A L.G.B. inquiry has been held into the application of the U.D.C. to borrow £700 for works for private streets, improvements in St. John's-road and Golf-terrace, and £2,000 for works of sewerage.

Nottingham.—The T.C. have decided to proceed at once with the erection of four district branch libraries.

Oldham.—The T.C. have decided to apply to the L.G.B. for borrowing powers for £8,255 for the construction of new bowling greens, the laying out of a recreation ground at Strinesdale, and for street improvements in Lees-road and Hollins-road; and also to ask for a grant from the Road Board towards the sum of £9,000 to be spent on two improvements in Ripponden-road.

St. Annes.—On their sea front of 4,816 acres the St. Annes Council propose to lay out a marine lake and open-air sea-water baths, at a cost of £6,500, and a L.G.B. inquiry has been held.

Scarborough.—The T.C. has decided to apply to the L.G.B. for sanction to borrow £10,000 for the making of a bathing pool on the north side.

Sheffield.—A L.G.B. inquiry has been held into the T.C.'s application to borrow £70,000 to carry out a scheme for the secondary treatment of its sewage.

Sleaford.—The R.D.C. has decided to apply for a loan of £450 to supply Anwick with water.

Spilsby.—Plans passed by R.D.C.:—Addition to house, Station-road, Sutton, for Mr. White; new street, Sutton-on-Sea, for Mr. Spurway; house, Spilsby-road, Eastville, for Mr. Hubbert.

Stamford.—The L.G.B. have held an inquiry into the T.C.'s application to borrow £4,071 for the erection of twenty-four workmen's dwellings on the Conduit-road.

Stockport.—The B.G. has agreed to the erection of an additional pavilion, etc., at the infirmary, at an estimated cost of £8,722.

Stocksbridge.—Plans of six houses in Pothouse-lane, for Messrs. Steward Bros., have been passed.

Sunbury.—Alterations to Hare and Hounds, Vicarage-road.

Swindon.—Plans passed:—Mr. E. H. Bradley, eleven houses, The Mall; addition to house, Kingshill-road; block plan of six houses, The Mall.

Tilbury.—The U.D.C. has received the following sanctions from the L.G.B. with regard to the housing scheme:—£4,960 for the purchase of land in the South Ward; £5,755 (street works £2,630, channelling £710, surface-water drainage and sewerage £2,415); £339 and £315 for depôt purposes; £1,594 for the purchase of land for allotments; and £3,790 and £100 for purposes of public walks and pleasure grounds.

Torquay.—Plans passed:—Pair of semi-detached houses, Audley Park Estate, for Mr. J. H. Edwards; pair of semi-detached villas, Audley Park Estate, for Messrs. R. L. & F. C. Yeo; house, Audley Park Estate, for Messrs. Yeo; semi-detached bungalow, Audley Park Estate, for Messrs. R. Aitken and F. A. Maunder; houses, Hampton Park Estate, for Messrs. E. W. Morgan and T. Foster.

Ulverston.—House at Causey-hill, Newby Bridge, for Mr. H. Bowerbank; extensions to Greenold Institute.

West Dean.—The R.D.C. have passed plans for a pair of houses at Pillowell, for Mr. William A. Davis; houses at Yorkley, for Mr. Charles James; schoolroom at Bream, for the Trustees of the Wesleyan Chapel; house at Hangerbury, Lydbrook, for Mr. Walter Parry.

Worcester.—The T.C. have decided to carry out an improvement in St. Martin's Gate, at a cost of £3,400.

GENERAL BUILDING NEWS.

CHURCH, ENFIELD.

St. Mark's Church, Bush-hill Park, Enfield, is being altered and enlarged at a cost of between £4,000 and £5,000. The work consists in extending the nave, adding a porch, increasing the accommodation in the vestries, etc., and general repairs. The architects are Messrs. Cutts, Davis, & Boddy, Southampton-street, Strand, W.C., and the general contractors are Messrs. Newby & Brothers, Enfield.

CHURCH WORK, WREXHAM.

The famous church of Wrexham has been reopened after important additions and alterations to the chancel, which have been carried out from the designs of Sir T. G. Jackson, R.A.

CHARING CROSS HOSPITAL.

Structural alterations, etc., are in progress at Charing Cross Hospital. The architect is Mr. A. Saxon Snell, F.R.I.B.A., Bentinck-street, Manchester-square, W., and the general contractors are Messrs. Higgs & Hill, Ltd., Crown Works, South Lambeth-road, S.W.

ART GALLERY, ALBEMARLE-STREET, W.

The art galleries of Messrs. Thomas Agnew & Sons, Old Bond-street, are being extended to Albemarle-street, the joint architects being Mr. C. Harrison Townsend, F.R.I.B.A., Queen's-road, St. John's Wood, N.W., and Mr. C. H. B. Quennell, F.R.I.B.A., Great Peter-street, Westminster. The site was cleared by Mr. Henry Boyer, Terminus Wharf, Paddington, and the general contractors are Messrs. F. & H. F. Higgs, Loughborough Junction, S.E.

TRADE NEWS.

Under the direction of Mr. C. Davidson, architect, Paisley, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air-inlets, has been applied to the South United Free Church Halls, Paisley.

McNeill's Leadonite dampcourse is being used in the construction of the Royal Gwent Hospital, Newport, Mon. The builder is Mr. C. H. Reed, of 1, Malpas-road, Newport. Leadonite is composed of a layer of sheet-lead sandwiched between two thicknesses of McNeill's pliable mastic asphalt, and forms a dampproof course of exceptional durability. Full particulars will be sent on application to sole manufacturers, Messrs. F. McNeill & Co., Ltd., Government contractors, Bunhill-row, E.C.

We are informed that the firm of civil engineers who have had the work in connection with the Lewes sewage works report that all experiments they made with the powder "Pudlo," for making cement waterproof, were perfectly successful.

The Tindale Crescent Tuberculosis Hospital, Co. Durham, has been supplied with Shorland's warm-air ventilating patent Manchester grates, patent exhaust roof, and special inlet ventilators, by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

In connection with the Royal Victoria Patriotic School for Boys and Girls, at Wandsworth-common, which has recently been converted into a temporary hospital for wounded soldiers, and reference to which was made in our last issue, we may add that a series of eleven "Victor" complete hot-water apparatus for the baths and general purposes at this hospital have been supplied by Mr. Thomas Potterton, Cavendish Works, Balham.

ASPHALTE.

PILKINGTON & CO., an *ALL-ENGLISH* firm, established over seventy-six years, are prepared to supply and lay FRENCH ASPHALTE in the original blocks as received from the MINES in FRANCE, and to produce the Certificate of Origin of each consignment if required.

Architects, Engineers, and Builders should avoid so-called French asphalte manufactured in England and cast into blocks in this country, as they afford no means of proving whence the material emanated. In some cases they contain little or no rock asphalte.

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NOTE.—PILKINGTON & CO. guarantee all work executed by them.

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List of Competitions, Contracts, etc.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this number: Competitions, — ; Contracts, iv. vi. viii. x.; Public Appointments, xviii.; Auction Sales, xxii. Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

*** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.

Competitions.

OCTOBER 21.—**Fritton.**—HOUSES.—The R.D.C. of Mutford and Lothingland invite architects to submit in competition plans with descriptive specifications and estimate of cost of two semi-detached houses, proposed to be erected in the parish of Fritton. Each house to contain three bedrooms, one small parlour, one large kitchen, wash-house, and the usual offices. No remuneration will be paid by the Council except to the author of the selected plans, who will receive the usual fees in the event of the proposed houses being erected. Plans should be submitted unsigned to Mr. W. Bryan Forward, Clerk, 148, London-road, N. Lowestoft.

OCTOBER 26.—**Oulton.**—CHILDREN'S HOME.—The Guardians of Mutford and Lothingland Union invite architects to submit plans of one of a series of cottage homes to be erected in the parish of Oulton. The architect submitting the plan adopted (if any) will be employed to prepare specifications, etc., and to supervise the carrying out of the work, and will receive the usual fees. Particulars of Mr. F. W. Osbourne, Clerk, Crown-street Hall, Lowestoft.

OCTOBER 31.—**Adelaide, South Australia.**—LAYING-OUT SHOW GROUNDS.—Premiums, £500, £200, and £100. Secretary, Royal Agricultural and Horticultural Society of South Australia, 23, Waymouth-street, Adelaide, South Australia.

OCTOBER 31.—**London.**—DRAWINGS OR PHOTOGRAPHS.—Messrs. W. E. Whiteside & James Caslake, Ltd., 4, New Burlington-street, W., offer prizes of £5 5s., £3 3s., and £2 2s. for drawings or photographs of old metal work.

OCTOBER 31.—**St. Helens.**—POLICE BUILDINGS AND FIRE STATION.—The St. Helens C.B. invite competitive designs for the above buildings. Premiums, £100, £50, and £25. See advertisement in our issue of July 10.

JANUARY 15, 1915.—COLLEGE MEMORIAL LECTURE HALL.—**Designs for the Alexander Thompson Travelling Studentship must be delivered by the above date. See advertisement in issue of January 30. (We hear that owing to the war the Trustees have decided to postpone this competition for one year.)**

Contracts.

BUILDING AND PAINTING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

OCTOBER 17.—**Newcastle-on-Tyne.**—ADDITIONS.—Additions and alterations to the premises of the Northumberland and Durham Miners' Permanent Relief Fund at Nos. 5 and 6, Queen's-square, Newcastle-upon-Tyne. Names to Mr. Charles S. Errington, A.R.I.B.A., Victoria-buildings, Grainger-street West, Newcastle-upon-Tyne.

OCTOBER 19.—**Cardiff.**—PAINTING.—Painting, etc., at Cardiff Workhouse. Specification of Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff.

OCTOBER 19.—**Carlisle.**—CLOSETS.—Provision of two new water-closets in male casual wards of the Workhouse, for the Board of Guardians. Particulars from Mr. George Armstrong, architect, 24, Bank-street, Carlisle.

OCTOBER 19.—**Diss and Aylsham.**—RIFLE RANGES.—Extension of Diss and Cawston Rifle Ranges under usual War Office conditions. Particulars at Mounted Brigade Headquarters at Diss and Aylsham.

OCTOBER 19.—**Glasgow.**—ADDITIONS.—Additions and alterations on eastern police buildings, Tobago-street, viz.:—(1) Brick, etc., works; (2) wright, etc., works; (3) slater and plaster works; and (4) plumber work. Specifications at the Office of Public Works, 64, Cochrane-street, Glasgow.

OCTOBER 19.—**Glasgow.**—PAINTING.—Painter work required at (1) the administrative block, etc.; and (2) the maids' home, Ruchill Hospital. Specifications at the Office of Public Works, 64, Cochrane-street, Glasgow.

OCTOBER 19.—**Hull.**—PAINTING.—Painting, etc., at the Workhouse, Beverley-road, Hull, and the relief station, Fern-street, Hull. Specification of Mr. T. Beecroft Atkinson, M.S.A., Trinity House-lane, Hull.

OCTOBER 19.—**Rosslynlee Asylum.**—STORES.—Mason, plumber, plaster, slater, and glazier works for stores at Rosslynlee Asylum, for the Midlothian and Peebles Board of Control. Schedules from Mr. A. Murray Hardie, Licentiate R.I.B.A., 20, George-street, Edinburgh.

OCTOBER 19.—**Runcorn.**—ALTERATIONS.—Alterations and repairs at the Workhouse, situate at Dutton, near Preston Brook. Specification of Messrs. Wright & Hamlyn, Sankey-street-chambers, Warrington.

OCTOBER 19.—**Sheffield.**—ALTERATIONS, ETC.—Alterations and extensions to Woodside Council School, for the Corporation. Quantities of the City Architect, Town Hall, Sheffield.

OCTOBER 19.—**Stoke-on-Trent.**—PAINTING.—For exterior and interior painting at the Guardians' Institution. Specification of Mr. T. Wood, Clerk, Union Offices, Stoke-on-Trent.

OCTOBER 20.—**Bersted.**—COTTAGES.—Erection of six cottages at North Bersted, and the maintaining in thorough repair of such cottages for twelve calendar months, for the R.D.C. of West Hampnett. Persons desiring to tender, and to receive a copy of the general conditions, etc., must apply to the Clerk of the Council by October 16 at the Council Offices, 5, South-street, Chichester. Deposit, 10s.

OCTOBER 20.—**Borth.**—VILLAS.—Erection of two semi-detached villas at Borth, for Capt. John Davies, Neptune House. Specifications of Mr. J. Lewis-Evans, architect, 21, Great Darkgate-street, Aberystwyth.

OCTOEBR 20.—**Deptford.**—PAINTING.—For internal painting works at the Town Hall, New Cross-road, for the Deptford B.C. Specification of the Borough Surveyor, Town Hall.

OCTOBER 20.—**Garforth.**—STABLES, ETC.—Making of stables in premises of the U.D.C. at Garforth Mill, and erection of wall. Specifications of Mr. T. Abbott, Surveyor, Council Offices, Garforth.

OCTOBER 20.—**Plymouth.**—ALTERATIONS, ETC.—Alterations and additions to No. 19, North-street, Plymouth, for the Plymouth Guardians. Quantities of Mr. F. A. Wiblin, M.S.A., architect, 92, Old Town-street, Plymouth.

OCTOBER 20.—**Rochdale.**—PAINTING.—For painting greenhouses, etc., at the cemetery. Particulars of the Borough Surveyor, Town Hall.

OCTOBER 21.—**Chester-le-Street.**—HOUSES.—Erection of forty-seven houses at Washington Station, in the parish of Washington, for the Chester-le-Street R.D.C. Names to Mr. John H. Mole, Surveyor to the Council, Chester-le-Street. Deposit, £5 5s.

OCTOBER 21.—**Clare.**—RENOVATION.—For renovating Clare Presbyterian Church, near Tanderagee. Specifications of Mr. J. W. Walby, architect, Portadown, Ireland.

OCTOBER 21.—**Hunslet.**—PAINTING.—Painting at the institution of the Board of Guardians at Rothwell Haigh. Specification of Mr. F. W. Mee, Clerk, Union Offices, Hunslet, Leeds.

OCTOBER 21.—**Reading.**—DEMOLITION.—Demolition of five cottages, Yield Hall-place, and purchase of the materials. Specification of Mr. John Bowen, Borough Engineer, Town Hall, Reading.

OCTOBER 21.—**Westminster.**—ALTERATIONS.—Alterations to coachhouse and mortuary at the Workhouse, Wallis's-yard, Buckingham Palace-road, S.W., for the City of Westminster Guardians. Specifications of Mr. W. J. Lickley, Clerk, Guardians' Offices, Princes-row, Buckingham Palace-road, S.W.

OCTOBER 21.—**West Molesey.**—PAINTING.—Painting and decorating work at the Isolation Hospital, West Molesey, for the East and West Molesey U.D.C. Specification at the Surveyor's Office, Council Office, East Molesey.

* OCTOBER 22.—**Hackney.**—STRONG ROOM.—The Hackney B.C. invite tenders for construction of a strong room.

OCTOBER 22.—**Ipswich.**—HOSPITAL.—Erection of a small-pox hospital on Foxhall Heath, for the Corporation. Quantities of Mr. John R. Mead, Borough Engineer, Town Hall, Ipswich.

OCTOBER 22.—**Manchester.**—TILING.—Tenders and designs for wall and floor tiling at Didsbury Library. Particulars of the City Architect, Town Hall. Deposit, £1 1s.

OCTOBER 22.—**Nottingham.**—DEMOLITION.—Pulling down and clearing the site of the condemned property in the area bounded by Water-street, Pennyfoot-street, Manvers-street, and Newington-street. The property will be divided into four blocks, and a separate tender will be required in each case. Specification of Mr. Arthur Brown, City Engineer, Guildhall, Nottingham. Deposit, £1.

OCTOBER 22.—**Sheffield.**—BATHS, ETC.—Erection of (1) public baths, Merton-lane, Low Wincobank; (2) public washhouse, Daniel-hill, Upper Thorpe. Quantities of the City Architect, Town Hall, Sheffield.

OCTOBER 22.—**Stockport.**—STABLE, ETC.—Manual and team labour and materials required in the erection of a stable, cart shed, etc., at Denby-lane Farm. Quantities of Mr. John Atkinson, Borough Surveyor, Town Hall, Stockport.

OCTOBER 22.—**West Bromwich.**—ISOLATION BLOCKS.—Erection of isolation blocks at Lyndon, for the West Bromwich Union. Specification of Mr. A. H. Ward, Clerk to the Guardians, 22, Lombard-street, West Bromwich. Deposit, £1 1s.

OCTOBER 23.—**Merton.**—ALTERATIONS.—Alterations to the windows in the Council chamber at the Council offices, Kingston-road, Merton. Specifications of Mr. G. Jerram, Surveyor, Council Offices, Merton.

OCTOBER 23.—**Southampton.**—LIBRARY, ETC.—Erection of new branch library at Portswood, and alterations and additions to the Shirley Branch Library. Quantities of the Borough Engineer. Deposit, £1 1s.

OCTOBER 26.—**Hastings.**—EXTENSION.—Altering and enlarging the public convenience at White Rock, for the Corporation. Specifications of Mr. P. H. Palmer, Borough Engineer, Town Hall, Hastings.

OCTOBER 26.—**Winchester.**—ADDITIONS.—For erection of additional classrooms for 200 children and making other alterations at Basingstoke Brook-street Council School. Quantities of Mr. A. L. Roberts, Architect of the Education Committee, The Castle, Winchester. Deposit, £1 1s.

OCTOBER 27.—**Brighton.**—PAINTING, ETC.—For renovating, painting, etc., the interior of the north ward of the Poor Law Institution, Elmgrove, Brighton, for the Board of Guardians. Specifications of Mr. H. Burfield, Clerk, Parochial Offices, Princes-street, Brighton.

* OCTOBER 27.—**Essex.**—EXTENSION OF ASYLUM.—The West Ham B.C. invite tenders for the extension of Goodmayes Asylum.

OCTOBER 27.—**Ilford.**—BUILDINGS.—Erection of buildings and boundary walling at refuse destructor at Seven Kings, for the Ilford U.D.C. Quantities of Mr. H. Shaw, Surveyor, Town Hall, Ilford. Deposit, £5.

OCTOBER 27.—**Jedburgh.**—BRIDGE.—Widening and repairing Inchbonnie Bridge, over the Jed Water, near Jedburgh, for the Jedburgh District Committee of the Roxburgh C.C. Schedule of Mr. George Somervel Carfrae, C.E., 1, Erskine-place, Edinburgh. Deposit, £1.

OCTOBER 27.—**Manchester.**—HOUSES.—Erection of farm students' quarters at the Cottage Homes, Styal, Handforth, near Manchester, for South Manchester Board of Guardians. Quantities from Mr. Fredk. H. Overmann, 49, King street, Manchester. Deposit, £1 1s.

OCTOBER 28.—**Arnside.**—HOUSE.—Erection of detached residence at Arnside, for Mr. J. B. Loynds. Quantities, etc., of Mr. R. Bradley Barker, architect, Arnside, Cumberland.

OCTOBER 28.—**Manchester.**—LABORATORY, ETC.—Erection of a laboratory, pump-room, and pipe ducts at Baguley Sanatorium. Specifications of the City Architect, Town Hall, Manchester. Deposit, £1 1s.

OCTOBER 29.—**Oldham.**—CAR SHED.—Building and steelwork required for extension to Hollinwood car shed. Quantities at the Borough Surveyor's Office. Deposit, 10s. 6d.

* NOVEMBER 2.—**Essex.**—EXTENSION OF POST-OFFICE.—The Commissioners of H.M. Works, etc., invite tenders for extension of P.O.

* NOVEMBER 2.—**Greenwich.**—DISPENSARY.—The Greenwich B.C. invite tenders for erection of a tuberculosis dispensary.

* NOVEMBER 2.—**Radlett.**—BRIDGE.—The Hertfordshire C.C. invite tenders for taking down and rebuilding High Bridge.

* NOVEMBER 5.—**Southampton.**—EXTENSION OF POST-OFFICE.—The Commissioners of H.M. Works, etc., invite tenders for extension of P.O.

* NOVEMBER 17.—**East Ham.**—SCHOOL.—The East Ham Education Committee invite tenders for the erection of a school for 600 scholars.

NO DATE.—**Birkenshaw.**—PAINTING.—For painters' work to the Richmond Estate, Birkenshaw. Particulars of Mr. A. T. Verity, architect, More Dene, Bradford-road, Birkenshaw.

NO DATE.—**Buxton.**—BATHS.—Various works in connection with reconstruction of natural baths. Applications to Mr. F. Langley, Borough Engineer, Buxton.

NO DATE.—**High Wycombe.**—ALTERATIONS, ETC.—Alterations and additions to Workhouse Infirmary at Saunderton. Particulars of Mr. T. Thurlow, architect, High Wycombe.

* NO DATE.—**London.**—WORKSHOP.—Tenders are invited for the erection of a workshop.

NO DATE.—**Market Drayton.**—COTTAGES.—Erection of two cottages at Rowney Farm, Market Drayton. Applications to Mr. R. Matthews, architect, Paris Bank-chambers, Nantwich.

NO DATE.—**Preston.**—CATTLE LAIRAGE.—For timber work and brickwork in connection with the construction of a cattle lairage, for the Preston Corporation. Specifications of the Ribble Engineer.

NO DATE.—**Salford.**—CAR DEPÔT.—Erection of south extension central car depôt, Frederick-road, Pendleton, for the Corporation. Particulars of the General Manager, 32, Blackfriars-street, Salford.

[Those with an asterisk (*) are advertised in this issue.]

FURNITURE, MATERIALS, etc.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

OCTOBER 20.—**Brighton.**—GRANITE.—Supply of 1,500 tons of broken granite of various sizes. Specification of the Borough Surveyor, Town Hall, Brighton.

OCTOBER 20.—**Sheerness.**—ROAD MATERIAL.—Supply to the Sheerness U.D.C. of road material. Forms of tender of Mr. Vincent H. Stallon, Clerk, Council Offices, Sheerness.

OCTOBER 20.—**Spain.**—CEMENT.—The *Gaceta de Madrid* notifies that tenders will be received at the offices of the Junta de Fomento, Melilla, for 1,500 tons of artificial Portland cement. Specification may be seen at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, E.C.

OCTOBER 21.—**Feltham.**—GRANITE.—Supply of about 1,000 tons of granite to the U.D.C. Forms of tender of Mr. G. Stevens, Surveyor, Town Hall-chambers, Feltham.

OCTOBER 23.—**Gateshead.**—MATERIALS.—Supply of all kinds of materials to the North-Eastern Railway Company. Forms of tender of Mr. E. H. Clark, Stores Superintendent, Gateshead.

OCTOBER 26.—**Glasgow.**—MATERIALS.—Supply of goods to the institutions under the control of the Glasgow P.C. and District Board of Control, including ironmongery, plumber's materials, oils, colours, bricks, drain tiles, lime and cement, etc. Forms of tender of Mr. J. R. Motion, 266, George-street, Glasgow.

OCTOBER 28.—**Dublin.**—SLEEPERS.—Supply of 33,000 sleeper blocks, 10 in. by 10 in., or 66,000 sleepers, 10 in. by 5 in., all 8 ft. 11 in. long, or part sleepers and part blocks, for the Great Southern and Western Railway (Ireland). Specifications of the Company's Storekeeper, at the General Stores, Inchicore, Dublin.

* NOVEMBER 17.—**Dublin.**—HEATING AND HOT-WATER SUPPLY.—The Commissioners of Public Works in Ireland invite tenders for installation of a low-pressure hot-water heating system and hot-water supply, etc.

ENGINEERING, IRON, AND STEEL.

OCTOBER 19.—**Rustington.**—SEA DEFENCE WORKS.—Erection of four timber groynes and for the construction of a dwarf concrete wall in front of the road along the foreshore at Rustington, for the East Preston R.D.C. Specification of Mr. A. Shelley, Clerk, Town Offices, Littlehampton.

OCTOBER 20.—**Rochdale.**—FENCING.—About 742 lin. yds. of unclimbable wrought-iron railing and five gates. Particulars from the Borough Surveyor's Office, Town Hall, Rochdale.

OCTOBER 20.—**Southampton.**—PIPES, ETC.—For supply of cast-iron pipes and special castings for the Corporation. Specifications from the Waterworks Engineer, French-street, Southampton.

OCTOBER 20.—**Southend.**—STEEL CONSTRUCTION, ETC.—Supply and erection of timber decking, steel superstructure, etc., in connection with the erection of refreshment-room at the existing Outer Head. Quantities of Mr. E. J. Elford, Borough Engineer, Municipal-buildings, Southend. Deposit, £1 1s.

OCTOBER 21.—**Lossiemouth.**—HARBOUR WORKS.—Construction of concrete breakwater, timber pier excavation, and other works, for the Elgin and Lossiemouth Harbour Company. Specifications of Messrs. D. & C. Stevenson, civil engineers, 84, George-street, Edinburgh. Deposit, £1 1s.

OCTOBER 23.—**Gateshead.**—RAILWAY MATERIALS.—Supply to the North-Eastern Railway Company of iron and steel turnings, iron and steel borings, common drillings, metal borings and metal fire-bars, brass foundry ashes, oil-gas tar, etc. Forms of tender of Mr. E. H. Clark, Stores Superintendent, Gateshead.

OCTOBER 23.—**York.**—TELEGRAPHIC STORES.—Supply to the North-Eastern Railway Company of telegraphic apparatus, telegraph wire, and line stores. Mr. C. H. Ellison, the Company's Telegraph Superintendent, York.

OCTOBER 24.—**Lowestoft.**—PIPES.—Supply of about 2,483 yds. of 6-in. and 7-in. socket and spigot pipes, for the Corporation. Particulars of Mr. G. H. Hamby, Borough Engineer, Lowestoft.

OCTOBER 26.—**Buncrana.**—PIER.—Construction of harbour improvements, dredging, etc., at Buncrana, Co. Donegal, for the Board of Public Works. Quantities of Mr. H. Williams, Secretary, Office of Public Works, Dublin. Deposit, £1.

OCTOBER 26.—**Burton-Port.**—PIER.—Construction of a ferro-concrete pier (Hennebique system) at Burton-Port, Co. Donegal, for the Board of Public Works. Quantities of Mr. H. Williams, Secretary, Office of Public Works, Dublin. Deposit, £1.

OCTOBER 26.—**Rathmullan.**—PIER.—Construction of an extension in ferro-concrete (Hennebique system) to the existing pier at Rathmullan, Co. Donegal, for the Board of Public Works. Quantities of Mr. H. Williams, Secretary, Office of Public Works, Dublin. Deposit, £1.

ROAD, SANITARY, AND WATER WORKS.

OCTOBER 19.—**Cockermouth.**—DRAINAGE.—For drainage works at the Workhouse, for the Cockermouth Board of Guardians. Particulars of Mr. F. J. Rielly, U.D.C. Offices, Cockermouth.

OCTOBER 19.—**Longford.**—WATERWORKS.—Supply of fireclay pipes, cement, and other materials required for the construction of pipe drains and other works, for the U.D.C. Specification of the Consulting Engineer, Mr. F. Bergin, 36, Westmoreland-street, Dublin.

OCTOBER 19.—**Manchester.**—DRAINAGE.—Construction of main drainage work No. 8 (4), East Didsbury intercepting sewer, for the Manchester Corporation. Quantities at the City Surveyor's Office, Town Hall, Manchester. Deposit, £10 10s.

OCTOBER 19.—**Warrington.**—FLAGGING.—Flagging of the girls' playground at the Padgate Cottage Homes with concrete flags, for the Warrington Union. Specifications from the Superintendent at the Homes.

OCTOBER 20.—**Caerphilly.**—ROAD WORK, ETC.—Fencing, construction of roads, paths, drainage, and other contingent works in laying out the proposed recreation grounds at (*a*) Taff's Well; (*b*) Abertridwr; (*c*) Nelson, for the Caerphilly U.D.C. Specifications of Mr. Alfred O. Harpur, Surveyor, Council Offices, Caerphilly. Deposit, £1 1s.

OCTOBER 20.—**Cleckheaton.**—BOWLING GREEN.—Making of bowling green, for the Cleckheaton Moorend Working Men's Club. Specifications at the Club.

OCTOBER 20.—**Salcombe.**—STREET WORKS, ETC.—Construction of a septic tank and the making-up of South Sands-road, for the U.D.C. Quantities of Mr. G. I. Holmes, Surveyor to the Council, Salcombe.

OCTOBER 20.—**Southampton.**—RESERVOIR.—Construction of watertight covered reservoir of a capacity of 7,000,000 gallons, etc., at Bassett, for the Corporation. Quantities at the Waterworks Engineering Offices, 33 and 35, French-street, Southampton. Deposit, £5.

OCTOBER 20.—**Tottenham.**—STREET WORKS.—Widening and reconstructing Philip-road, and resurfacing carriageway with Trinidad asphalt macadam, for the U.D.C. Quantities of Mr. W. H. Prescott, Engineer, Town Hall, Tottenham. Deposit, £5.

OCTOBER 24.—**Bacup.**—SEWERAGE WORKS.—For sewerage works required in the borough. Particulars from Borough Surveyor.

OCTOBER 24.—**Cheltenham.**—PAVING.—Providing and laying about 1,500 sq. yds. of creosoted deal-block pavement in Albion-street, for the Corporation. Quantities of Mr. J. S. Pickering, Borough Engineer, Municipal Offices, Cheltenham.

OCTOBER 26.—**Abingdon.**—WATER SUPPLY.—For sinking a well and driving adits at Melton Hill, Steventon, Berks, for the supply of water to Sutton Courteney, Drayton, and Steventon villages, for the Abingdon R.D.C. Quantities of Mr. G. Winship, Engineer, Abingdon. Deposit, £1.

* OCTOBER 26.—**Hendon.**—ROAD REPAIRS AND UNDERGROUND CONVENIENCES.—The Hendon U.D.C. invite tenders for road-making and for the construction of an underground convenience.

OCTOBER 26.—**Hertford.**—PIPE LAYING.—Providing, laying, and jointing about 140 yds. of 30-in. diameter concrete pipes, etc., for the T.C. Quantities of the Borough Engineer, Mr. John Hy. Jevons, The Castle, Hertford. Deposit, £3 3s.

OCTOBER 26.—**Oystermouth.**—RESERVOIR.—Construction of a reinforced-concrete service reservoir and filter tanks at Picket Mead, Newton, for the Oystermouth U.D.C. Quantities of Mr. W. P. Puddicombe, Surveyor, Council Offices, Oystermouth. Deposit, 10s

OCTOBER 26.—**York.**—ROADS.—For construction of 418 yds. of new road, 50 ft. wide, and making-up. Quantities of Mr. F. W. Spurr, City Engineer, Guildhall, York. Deposit, £2 2s.

* OCTOBER 27.—**Harlesden.**—ROAD-MAKING, ETC.—The Harlesden D.C. invite tenders for road-making and paving works.

OCTOBER 27.—**Rawmarsh.**—STREET WORKS.—Making-up of Ann-street, Parkgate, for the Rawmarsh U.D.C. Quantities of Mr. J. A. Tonge, Engineer, Council Offices, Rawmarsh. Deposit, 10s. 6d.

NOVEMBER 3.—**Rhymney Valley.**—SEWER.—Construction, for the Rhymney Valley Sewerage Board, of a main outfall sewer, about 11 miles long, varying from 30 in. to 15 in. in diameter, of concrete, stoneware, and cast-iron, together with various auxiliary works, commencing about 1 mile south of Ystrad Mynach and extending to Pontlottyn. Quantities of Messrs. Willcox & Raikes, MM.Inst.C.E., 63, Temple-row, Birmingham, and of Mr. T. J. Thomas, 36, High-street, Bargoed, Glam. Deposit, £20.

* NOVEMBER 3.—**Wandsworth.**—UNDERGROUND CONVENIENCES.—The Wandsworth B.C. invite tenders for erection of underground conveniences at various points.

NOVEMBER 9.—**Lanark.**—SEWERAGE WORKS.—Construction of a sewerage system (comprising about 4¼ miles of fireclay pipe sewers from 9 in. to 24 in. in diameter) and sewage tank at Hawkwoodburn, and relative works, for the Shotts and Dykehead Special Drainage District. Schedule of Mr. W. L. Douglass, M.Inst.C.E., District Engineer, District Offices, Hamilton. Deposit, £1.

Public Appointments.

* OCTOBER 26.—ARCHITECTURAL ASSISTANT.—The Ealing B.C. invite applications for the above temporary post. Salary, £2 10s. per week.

* OCTOBER 27.—JUNIOR DRAUGHTSMAN.—The Glamorgan E.C. invite applications for the above post. Salary, £70 per annum.

Auction Sales.

* OCTOBER 28.—Messrs. Churchill & Sim will sell by auction, at the Great Hall, Winchester House, Old Broad-street, E.C., an assortment of deals, battens, boards, timbers, etc.

* OCTOBER 28.—**Gloucester.**—Mr. H. T. Bruton will sell by auction, on the premises, the stock in trade and effects of a builder.

* NOVEMBER 3.—**Westminster.**—Messrs. Fuller, Horsey, Sons, & Cassell will sell by auction, on the premises, various plant.

[Those with an asterisk (*) are advertised in this issue.]

APPLICATIONS UNDER LONDON BUILDING ACTS, 1894 to 1909.

THE following amongst other applications have been assented to during the summer recess by the Building Act Committee of the London County Council under the London Building Acts, 1894 to 1909:—

Clapham.—Erection of two-story bay-windows, projecting porches, and bargeboards to twelve houses in Wisley-road and three houses in Broomwood-road, Clapham-common (Mr. F. L. Poole for Mr. W. E. Kerven).

Hampstead.—Erection of overhanging roofs and half-timber work to two houses on the north-east side of Haverstock-hill, Hampstead (Messrs. Worley & Turner).

Hampstead.—Extension of the periods for erection of additions at Nos. 3 and 4, Byron-villas, Hampstead Heath (Mr. E. Potter).

Kennington.—Projecting shop fronts at the block of Old People's Dwellings next Sancroft-street, Newburn-street, and Prince's-road, Kennington (Messrs. Adshead & Ramsey for the Duchy of Cornwall Estate).

Kensington, North.—One-story addition at St. Anne's Homes and Convent, Portobello-road, Kensington (Mr. R. L. Curtis).

Lewisham.—House on the eastern side of Eastdown Park, Lewisham (Mr. W. Goddard for Mr. H. W. Ayres).

Lewisham.—Erection of projecting porches and bay-windows in front of Nos. 116-126 inclusive, Grierson-road, Honor Oak (Messrs. Norfolk & Prior for Mr. C. Walker).

Lewisham.—Oriel-windows, bay-windows, and hoods at Nos. 157-163, Manwood-road, Lewisham (Mr. J. Nicholls).

Norwood.—Erection of an iron and glass shelter at the entrance to Willoughby Hall, Ullswater-road, Norwood (Mr. A. L. Guy for Willoughby Hall Development Company, Ltd.).

Norwood.—Extension of period for erection of buildings on the western side of Brixton-hill and the southern side of Cornwall-road, Brixton (Messrs. H. Wakeford & Sons).

St. George, Hanover-square.—Additions and an oriel-window at No. 13, Chester-square, Westminster, next Eccleston-street (Mr. E. Warren for Mr. C. C. Lacaita).

Wandsworth.—Erection of a building on the west side of Streatham High-road, on part of the site of No. 42, Streatham High-road (Temperance Billiard Halls, Ltd.).

Wandsworth.—Erection of porches and bay-windows to two houses on the north-eastern side of Fontaine-road, Streatham (Messrs. E. & A. Wates).

Wandsworth.—Erection of two-story bay-windows, projecting porches, and bargeboards to Nos. 37, 39, 41, 43, 45, and 47, Topsham-road, Upper Tooting (Messrs. Swain & Selley).

Wandsworth.—Nine houses on the south side of Penistone-road, Streatham-common, with projecting bay-windows, porches, sham half-timber work, 4½-in. gables in cement mortar (Mr. W. S. Jones).

Woolwich.—Consent to (i.) the use of timber in external walls, (ii.) the construction of bay-windows, and (iii.) the omission of party walls above the roofs of houses on the New Eltham Tenants Estate, between Footscray-road and Green-lane, Eltham (Messrs. Pepler & Allen for New Eltham Tenants, Ltd.).

Woolwich.—Projecting porches to two houses on the northern side of Shooter's-hill, Woolwich (Mr. T. H. Hutchings).

Frontage and Deviation from Certified Plans.

St. Pancras, West.—Re-erection of the Sol's Arms public-house, No. 65, Hampstead-road, St. Pancras (Messrs. F. J. Eedle & Meyers for Mr. B. H. Colson & Truman, Hanbury, Buxton, & Co., Ltd.).

Width of Way and Frontage.

Newington, West.—Building on the site of Nos. 1-23, Falmouth-road, Newington, with a porch and projection (Mr. F. Witt for Waygood-Otis, Ltd.).

Width of Way.

Bethnal Green, South-West.—Erection of a vestry addition to the Church of St. James-the-Great (Mr. E. T. Dunn).

Bethnal Green, South-West.—Hall and institute at the Church of St. James-the-Great, to abut upon Pollard-row and Florida-street, Bethnal Green (Mr. E. T. Dunn).

Peckham.—Addition at the premises of Messrs. S. Jones & Co. (Messrs. H. King & Son for Messrs. S. Jones & Co.).

Space at Rear.

St. George, Hanover-square.—Buildings on the western side of Park-street and the southern side of Green-street, W., with irregular open spaces at the rear (Mr. E. Wimperis for the Grosvenor Estate).

Westminster.—Addition at the rear of No. 82, Vincent-square, Westminster (Messrs. Davis, Bennett, & Co.).

Deviation from Certified Plans.

Kensington, South.—Alterations and additions at No. 47, Emperor's-gate, Kensington (Mr. H. Kenchington for Mrs. Eva Furber).

Whitechapel.—Re-erection of No. 1, Wentworth-street, Whitechapel (Messrs. L. Solomon & Son).

Alteration of Buildings.

Hampstead.—Alterations at No. 312, High-road, Kilburn (Lipton, Ltd.).

Kensington, North.—Alterations at No. 176, Portobello-road, Notting Hill (Mr. W. S. Carruthers).

Paddington, North.—Alterations at Nos. 439 and 441, Harrow-road, Paddington (Mr. M. T. E. Jackson).

St. George, Hanover-square.—Alterations at Nos. 20 and 21, Old Bond-street, W. (Mr. E. K. Purchase for the Wolseley Tool and Motor Car Company, Ltd.).

St. George, Hanover-square.—Addition to Nos. 42-43, Old Bond-street, and No. 4, Albemarle-street, W. (Mr. C. H. B. Quennell for Messrs. Agnew).

St. George, Hanover-square.—Alterations at premises abutting upon Market-mews, Pitt's Head-mews, and Little Stanhope-street,. W. (Mr. R. A. Hinds for Mrs. Montefiore).

Buildings for the Supply of Electricity.

Holborn.—Erection of a building at Nos. 42-43, Eagle-street, Holborn (Mr. J. W. S. Burmester for the Metropolitan Electric Supply Company, Ltd.).

Formation of Streets.

Norwood.—Order to Mr. J. Wilson sanctioning the laying-out of two new streets for carriage traffic on the Highview Park Estate, Leigham Court-road, Streatham.

Cubical Extent.

Newington, West.—Additional cubical extent in respect of a building on the site of Nos. 1-23, Falmouth-road, Newington, and the erection of an extension to the existing metal machine shop (Mr. F. Witt).

Poplar.—Additional cubical extent at the premises of Baldwins, Ltd., on the west side of Orchard-place, Blackwall (Baldwins, Ltd.).

Line of Frontage, Projections, and Construction.

Norwood.—Erection of buildings on the south-west side of Baytree-road, Brixton (Messrs. E. Evans & Sons for Mr. A. Braunstein).

Wandsworth.—Erection of two dwelling-houses and a motor-house on the south side of Woodbourne-avenue, Streatham (Messrs. Holliday & Stanger).

PATENTS.

APPLICATIONS PUBLISHED.*

20,201 of 1913.—Samuel Rowland Parkes: Fastening devices for sliding doors.

20,339 of 1913.—Noah Garnett: Tile ash-guards for fireplaces, stoves, and the like.

21,578 of 1913.—Khursedji Sorabji Jassawalla: Domestic firegrates.

23,718 of 1913.—Khursedji Sorabji Jassawalla: Ventilating system.

26,397 of 1913.—Herbert Constable: Tipping vehicles.

OBITUARY.

Mr. Charles Wall.

It is with much regret we record the death of this well-known contractor. Deceased was born at Darley Dale, Derbyshire, in 1841, and came to London in the year 1867. He was a Justice of the Peace for Essex, a member of the Tylers' and Bricklayers' Company, and a director of the Builders' Accident Insurance, Ltd. He was also Past-President of the London Master Builders' Association, the Institute of Builders, and the Builders' Benevolent Institution. Deceased carried out various large and important contracts, among which may be mentioned:—

Queen's Hall.
Birkbeck Bank.
Chelsea Town Hall.
Fulham Town Hall.
Middlesex County Asylum, Napsbury.

A large number of municipal and poor-law institutions in and around the metropolis.

The superstructure of the Vauxhall new bridge.

Various bridges and buildings for the Great Northern, London, Tilbury, and Southend, and Great Western railways.

The substructure of the new County Hall, London.

The last important completed work was the construction of the new reservoir for the Metropolitan Water Board at Chingford, which was opened by the King in March, 1913, and named the King George Reservoir. During his residence in Chelsea he served on the Board of Guardians and also on the Vestry. Of late years he has resided at Grays and at Takeley, in Essex. He was a prominent Congregationalist, and strongly supported that body, both in Essex and in his native place.

Mr. Robert Adams.

We regret to announce the death of Mr. Robert Adams, the principal of the firm of Robert Adams, engineer, manufacturer, and patentee, 3 and 5, Emerald-street, Holborn, London, W.C., who passed away at his house at Brixton on September 11 last. The business will be continued under the title of Robert Adams by the sons, Mr. Sidney J. Adams, Mr. Robert H. Adams, and Mr. Henry H. Adams, who have long been associated with their father therein.

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to THE BUILDER LTD., and *not* to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

PRICES CURRENT OF MATERIALS.

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.]

**** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River.	£	s.	d.
Best Stocks	1	16	6
Picked Stocks for Facings	2	10	0

Per 1000, Delivered at Railway Depôt.

	£	s.	d.		£	s.	d.
Flettons	1	14	0	Best Blue Pressed Staffordshire	3	15	0
Best Fareham Red	3	12	0	Do. Bullnose	4	0	0
Best Red Pressed Ruabon Facing	5	0	0	Best Stourbridge Fire Bricks	4	0	0
GLAZED BRICKS—							
Best White, Ivory, and Salt Glazed Stretchers	13	0	0	Double Headers	15	10	0
Headers	12	10	0	One Side and two Ends	19	10	0
Quoins, Bullnose and 4½ in. Flats	16	10	0	Two Sides and one End	20	10	0
D'ble Str'tch'rs	18	10	0	Splays and Squints	18	0	0

Second Quality £1 10s. per 1000 less than best.

	s.	d.	
Thames and Pit Sand	7	3	per yard, delivered.
Thames Ballast	5	9	" "
Best Portland Cement	37	0	per ton, "
Best Ground Blue Lias Lime	20	0	" "

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 14s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton, at rly dpt.

STONE.

Per Ft. Cube.

	s.	d.
BATH STONE—delivered on road waggons, Paddington Depôt	1	7½
Do. do. delivered on road waggons, Nine Elms Depôt	1	9½

STONE (*Continued*).

Per Ft. Cube.

PORTLAND STONE (20 ft. average)—	s.	d.
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	4½
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	6½

Per Ft. Cube, delivered at Railway Depôt.

	s.	d.		s.	d.
Ancaster in blocks	1	10	Closeburn Red Freestone	2	0
Beer in blocks	1	6	Red Mansfield Freestone	2	4
Greenshill in blocks	1	10	Talacre & Gwespyr Stone	2	4
Darley Dale in blocks	2	4			
Red Corsehill in blocks	2	3			

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt.	s.	d.
Scappled random blocks	2	10

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto, ditto	2	6
3 in. sawn two sides slabs (random sizes)	0	11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7
1½ in. to 2 in. ditto, ditto	0	6

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt.		
Scappled random blocks	3	0

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landing to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto	3	0
3 in. sawn two sides slabs (random sizes)	1	2
2 in. self-faced random flags	0	5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£	s.	d.	In. In.	£	s.	d.
20 × 10 best blue Bangor	13	2	6	20 × 10 best Eureka unfading green	15	17	6
20 × 12 ditto	13	17	6	20 × 12 ditto	18	7	6
20 × 10 1st q'lity ditto	13	0	0	18 × 10 ditto	13	5	0
20 × 12 ditto	13	15	0	16 × 8 ditto	10	5	0
16 × 8 ditto	7	5	0	20 × 10 permanent green	12	12	6
22 × 10 best blue Portmadoc	12	12	6	18 × 10 ditto	10	12	6
16 × 8 ditto	6	12	6	16 × 8 ditto	7	12	6

TILES.

At Railway Depôt.

	s.	d.		s.	d.
Best plain red roofing (per 1000)	42	0	Best "Hartshill" brand, plain sand-faced (per 1000)	45	0
Hip and Valley (per doz.)	3	7	Do. pressed (per 1000)	42	6
Best Broseley (per 1000)	50	0	Do. Ornamental (per 1000)	47	6
Do. Ornamental (per 1000)	52	6	Hip (per doz.)	4	0
Hip and Valley (per doz.)	4	0	Valley (per doz)	3	6
Best Ruabon red, brown, or brindle (Edw'ds)(pr1000)	57	6	Staffords. (Hanley) Reds or Brindled (per 1000)	42	6
Do. Ornamental (per 1000)	60	0	Hand-made sand-faced (per1000)	45	0
Hip (per doz.)	4	0	Hip (per doz.)	4	0
Valley (per doz)	3	0	Valley (per doz)	3	6

WOOD.

BUILDING WOOD.	At per standard.					
	£	s.	d.		£	s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	17	5	0	..	18	15 0
Deals: best 3 in. by 9 in.	17	5	0	..	18	5 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	14	12	6	..	15	12 6
Battens: best 2½ by 6 and 3 by 6	0	10	0		less than 7 in. and 8 in.	
Deals: seconds	1	0	0		less than best	
Battens: seconds	0	10	0		"	"
2 in. by 4 in. and 2 in. by 6 in.	13	5	0	..	14	5 0
2 in. by 4½ in. and 2 in. by 5 in.	12	2	6	..	13	2 6
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.		
¾ in.	1	0	0	"		
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft.					
	6	0	0	..	7	5 0
Seconds	5	7	6	..	6	17 6
Small timber (8 in. to 10 in.)	4	12	6	..	4	17 6
Small timber (6 in. to 8 in.)	3	17	6	..	4	5 0
Swedish balks	3	5	0	..	3	12 6
Pitch-pine timber (30 ft. average	7	10	0	..	8	10 0

JOINERS' WOOD.	At per standard.					
	£	s.	d.		£	s. d.
White Sea: first yellow deals, 3 in. by 11 in.	29	15	0	..	31	0 0
3 in. by 9 in.	27	12	6	..	29	0 0
Battens, 2½ in. and 3 in. by 7 in.	21	5	0	..	22	5 0
Second yellow deals, 3 in. by 11 in.	24	15	0	..	25	15 0
Do. 3 in. by 9 in.	23	0	0	..	24	0 0
Battens, 2½ in. and 3 in. by 7 in.	17	5	0	..	18	5 0
Third yellow deals, 3 in. by 11 in. and 9 in.	18	5	0	..	19	5 0
Battens, 2½ in. and 3 in. by 7 in.	16	0	0	..	17	0 0
Petersburg: first yellow deals, 3 in. by 11 in.	26	10	0	..	27	10 0
Do. 3 in. by 9 in.	23	0	0	..	24	0 0
Battens	17	5	0	..	18	5 0
Second yellow deals, 3 in. by 11 in.	19	5	0	..	20	5 0
Do. 3 in. by 9 in.	18	7	6	..	19	7 6
Battens	—			..	—	
Third yellow deals, 3 in. by 11 in.	16	0	0	..	17	0 0
Do. 3 in. by 9 in.	15	10	0	..	16	10 0
Battens	13	5	0	..	14	5 0

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

WOOD (*Continued*).

JOINERS' WOOD (*Continued*)—	At per standard. £	s.	d.		£	s.	d.
White Sea and Petersburg—							
First white deals, 3 in. by 11 in.	19	5	0	..	20	5	0
First white deals, 3 in. by 9 in.	17	2	6	..	18	2	6
Battens	15	0	0	..	15	10	0
Second white deals, 3 in. by 11 in.	17	2	6	..	18	2	6
Second white deals, 3 in. by 9 in.	15	0	0	..	16	0	0
Battens	13	15	0	..	14	5	0
Pitch-pine: deals	30	15	0	..	32	15	0
Under 2 in. thick extra..	0	10	0	..	1	0	0
Columbian or Oregon Pine, best quality	26	0	0	..	28	0	0
Yellow Pine—First, regular sizes	54	0	0	upwards.			
Oddments	37	0	0	,,			
Seconds, regular sizes	38	10	0	,,			
Oddments	33	0	0	,,			
Kauri Pine—Planks per ft. cube	0	6	6	..	0	7	6
Danzig and Stettin Oak Logs—							
Large, per ft. cube	0	4	0	..	0	5	0
Small ,, ,,	0	3	6	..	0	4	0
Wainscot Oak Logs, per ft. cube	0	9	6	..	0	11	0
Dry Wainscot Oak, per ft. super. as inch	0	0	11	..	0	1	3
½ in. do. do.	0	0	10	..	0	0	11
Dry Mahogany — Honduras, Tabasco, per ft. super. as inch	0	0	11	..	0	1	4
Selected, Figury, per ft. super. as inch	0	1	6	..	0	2	6
Cuba Mahogany	0	1	6	..	0	2	0
Dry Walnut, American, per ft. super. as inch	0	0	11	upwards.	0	1	3
French, "Italian," Walnut ..	0	0	11	..	0	1	6
Teak, per load (Rangoon or Moulmein)	28	0	0	..	34	0	0
Do., do. (Java)	24	0	0	..	27	0	0
American Whitewood planks, per ft. cube	0	6	6	..	0	7	6
Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	15	6	..	0	18	0
1 in. by 7 in. yellow, planed and matched	0	16	0	..	0	19	0
1¼ in. by 7 in. yellow, planed and matched	0	18	6	..	1	3	0
1 in. by 7 in. white, planed and shot	0	15	0	..	0	17	0
1 in. by 7 in. white, planed and matched	0	15	6	..	0	17	6
1¼ in. by 7 in. white, planed and matched	0	17	6	..	0	19	6
½ in. by 7 in. yellow, matched and beaded or V-jointed boards	0	13	6	..	0	16	0
1 in. by 7 in. ,, ,,	0	16	0	..	0	19	6
½ in. by 7 in. white ,, ,,	0	13	0	..	0	15	0
1 in. by 7 in. ,, ,,	0	15	6	..	0	16	6

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	9	10	0	..	10	10	0
Compound Girders, ordinary sections	12	0	0	..	13	0	0
Steel Compound Stanchions..	13	0	0	..	15	0	0
Angles, Tees, and Channels, ordinary sections	12	0	0	..	13	0	0
Flitch Plates	12	0	0	..	13	0	0
Cast Iron Columns & Stanchions, including ordinary patterns	9	0	0	..	10	0	0

METALS.

	Per ton, in London. £	s.	d.		£	s.	d.
IRON—							
Common Bars	9	10	0	..	10	0	0
Staffordshire Crown Bars, good merchant quality ..	9	15	0	..	10	5	0
Staffordshire "Marked Bars"	11	10	0	..		—	
Mild Steel Bars	9	15	0	..	10	5	0
Hoop Iron, basis price	10	10	0	..		—	
,, ,, Galvanised	19	0	0	..		—	
(* And upwards, according to size and gauge.)							
Sheet Iron Black—							
Ordinary sizes to 20 g.	10	15	0	..		—	
,, ,, 24 g.	11	15	0	..		—	
,, ,, 26 g.	13	5	0	..		—	
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	17	0	0	..		—	
Ordinary sizes to 22 g. and 24 g.	17	10	0	..		—	
Ordinary sizes to 26 g.	18	10	0	..		—	
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	20	0	0	..		—	
,, ,, 22 g. and 24 g.	20	10	0	..		—	
Ordinary sizes to 26 g.	22	0	0	..		—	
Galvanised Corrugated Sheets—							
Ordinary sizes, 6 ft. to 8 ft. 20 g.	16	10	0	..		—	
Ordinary sizes, 22 g. and 24 g.	16	15	0	..		—	
Ordinary sizes, 26 g.	18	5	0	..		—	
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	13	10	0	..		—	
Best Soft Steel Sheets, 22 g. & 24 g.	14	10	0	..		—	
Best Soft Steel Sheets, 26 g...	16	10	0	..		—	
Cut Nails, 3 in. to 6 in.	11	10	0	..	12	0	0
(Under 3 in.. usual trade extras.)							

LEAD, &c.

	Delivered in London. £	s.	d.		£	s.	d.
LEAD—Sheet, English, 4 lb. and up	24	10	0	..		—	
Pipe in coils	25	0	0	..		—	
Soil pipe	28	0	0	..		—	
Compo pipe	28	0	0	..		—	
ZINC—	In casks of 10 cwt.						
Sheet—	50	0	0	..		—	

LEAD, &c. (*Continued*).

Delivered in London.	£	s.	d.		
COPPER—					
Strong Sheet ..... per lb.	0	1	2	..	—
Thin ,, ... ,,	0	1	3	..	—
Copper nails..... ,,	0	1	2	..	—
Copper wire..... ,,	0	1	2	..	—
BRASS—					
Strong Sheet ..... ,,	0	1	2	..	—
Thin ..... ,,	0	1	3	..	—
TIN—English Ingots .. ,,	0	1	7	..	—
SOLDER—Plumbers' .. ,,	0	0	9	..	—
Tinmen's ..... ,,	0	1	0	..	—
Blowpipe ..... ,,	0	1	3	..	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.			
15 oz. thirds	3d.	26 oz. fourths	4½d.
,, fourths	2½d.	32 oz. thirds	6½d.
21 oz. thirds	4½d.	,, fourths	5½d.
,, fourths	3½d.	Fluted Sheet, 15 oz.	4d.
26 oz. thirds	4½d.	,, 21 oz.	5d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.	
¼ Rolled plate	2½d.
⅜ Rough rolled and rough cast plate	3d.
½ Rough rolled and rough cast plate	3½d.
Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white	3½d.
Ditto, tinted	5½d.

* Not less than two crates.

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	2	4
,, ,, ,, in barrels	,,	0	2	5
,, ,, ,, in drums	,,	0	2	7
Boiled ,, ,, in barrels.....	,,	0	2	7
,, ,, ,, in drums	,,	0	2	9
Turpentine in barrels	,,	0	2	8
,, in drums	,,	0	2	11
Genuine Ground English White Lead, (In not less than 5 cwt. casks.)	per ton	33	15	0
Red Lead, Dry	per ton	31	10	0
Best Linseed Oil Putty	per cwt.	0	10	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	9
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	6
Extra Pale French Oil	1	1	0
Eggshell Flating Varnish	0	18	0
White Pale Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	0
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	6
French and Brush Polish	0	10	0

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.]

TERMS OF SUBSCRIPTION.

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 6 p.m. on Wednesday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

*Denotes *accepted.* †Denotes *provisionally accepted.*

ABERDEEN.—Roofs to new sheds at Waterloo Quay, for the Aberdeen Harbour Board:—
Fleming & Co., Glasgow*..... £1,156

ABERPORTH.—For erection of a new Council school, for the Cardiganshire County Education Committee Mr. G. Dickens-Lewis, County Architect, Aberystwyth:—
D. J Rees £1,795 0
James & Richards 1,720 0
George & Michael 1,696 0
W. Davies 1,587 11
B. Jones, Ffynonlas, Sarnau, Henllan* 1,150 0

BARROW-ON-SOAR.—For alterations at the workhouse, for the Board of Guardians:—
F. Sleeth, Rothley* £320

BIGGLESWADE.—Erection of fourteen cottages at Beeston, and thirteen at St. Neot's-road, Sandy, for the Biggleswade Rural District Council:—

	Beeston.	St. Neot's-road.
W. Haynes	£3,732 0 0	£3,388 0 0
M. J. Allen	3,655 12 0	3,383 2 6
Hickman & Sons	3,549 0 0	3,296 0 0
Dawes & Bowler	3,560 0 0	3,113 0 0
Foster & Co.	3,273 12 10	3,014 10 0
Drever & Son, Ltd.	3,221 8 9	2,955 3 4
H. Cope, Sandy	3,225 0 0	2,922 0 0*
Bailey & Son, Ltd.	3,124 0 0	2,994 8 0
C. Wright, Langford	3,113 0 0*	2,894 0 0

BILLERICAY.—For sewerage work, for the Rural District Council:—
W. Lingwood, Romford* £106

BIRMINGHAM.—Erection of printing works at Erdington. Messrs. Skelcher & Machin, architects, Edmund-street, Birmingham:—
J. Holyoak & Son* £1,065

BRIDGWATER.—For boiler-house, etc., at the workhouse, for the Bridgwater Board of Guardians:—
Millard & Son, Bridgwater (for boiler)* £366 10
Pollard & Son, Bridgwater (for boiler-house and stack)* 499 0

BRIGHTON.—Construction of covered service reservoir at Old Shoreham, for the Brighton Corporation:—

Bostel Bros., Ltd.	£2,386 0	W. Willett	£1,970 0
F. Bevis, Ltd.	2,370 0	G. Stow & Co., Newport, Mon.*	1,740 0
Saunders Bros.	2,293 15		
J. Parsons & Sons	1,975 0		

CANE HILL.—Erection of superstructure of additional accommodation for nurses' at Cane Hill Asylum, for the Asylums Committee of the London County Council:—
Thomas & Edge, Woolwich* £1,793

COLNEY HATCH.—Erection of superstructure of a nurses' block at Colney Hatch Asylum, for the Asylums Committee of the London County Council:—
Mattock Bros., Wood-green* £2,087

CRICK.—For building of new Council school, for the Northamptonshire Education Committee:—
W. W. Webster, Guilsborough* £1,895

DARTFORD.—For extension to electricity works, for the Urban District Council:—
T. Knight, Sidcup* £1,695

DEPTFORD.—Erection of slipper baths at the Ilderton-road Slipper Baths, for the Borough Council:—
Barton & Co., Chancery-lane, W.C.* ... £2,413 10

DERBY.—For erection of Normanton Branch Library, for the Derby Corporation:—
R. Weston & Sons† £4,770 11 9

DERBY.—For additions to free library and art gallery, for the Corporation:—
W. Walkerdine, Ltd.* £5,547

DERBY.—For erection of branch library at Alverton, for the Derby Corporation:—
Pegg & Bailey† £5,159

DUDLEY.—Extension of sewer in High-street, Kate's Hill, for the Town Council:—
H. H. Hughes, Dudley* £115

EALING.—Supply of furniture to Isolation Hospital for the Corporation:—
J. Saunders, Ltd. £142 4 9

EAST HAM.—Alterations, etc., at East Ham Cottage Hospital, for the Committee:—
A. W. Clemens Bros.* £875 10

ECCLES.—For coal conveyer and elevator at electricity works, for the Corporation:—
E. Bennis & Co.* £425

ESSEX.—Construction of paths, etc., at Severalls Asylum, for the Essex County Council:—
A. C. W. Hobman & Co.* £1,476 11 6

ESSEX.—Erection of inspector's house, four cottages, and cowshed at Severalls Asylum, for the Essex County Council:—
R. Beaumont & Sons* £1,995

GRANGE-OVER-SANDS.—Construction of sewer, etc., for the Urban District Council:—
J. H. Keith £382 7 8
J. Johnson 379 4 4
A. O. Thoms, Grange-over-Sands* ... 375 10 0

HEDNESFORD.—For erection of elementary school for 500 children at Hightown, for the Cannock Urban District Council. Quantities by Messrs. Bailey & Solon, architects, Bridge-street, Walsall:—

Sapcote & Sons,	£6,899 0 0	Wilson, Lovatt, & Sons	£6,384 0 0
I. Guest & Son	6,670 0 0	A. Davies	6,380 0 0
S. Wootton	6,649 0 0	Gough & Son	6,124 0 0
Kendrick & Son	6,610 0 0	Sharp & Sons	5,970 0 0
E. pley & Sons	6,560 9 6	Elvins & Sons	5,870 0 0
W. Wistance	6,500 0 0	W. Roe	5,789 0 0
H. Willcock & Co.	6,475 0 0	Hacksley Bros., Wellingborough*	5,644 0 0

HOLCOT.—For alterations to the Holcot Council School, for the Northamptonshire Education Committee:—
J. C. Neal, Kettering* £510

HULL.—Heating and ventilating extensions to the Liverpool-street workshop, for the Tramways Committee:—
Brightside Foundry and Engineering Co.* ... £6,873

KENT.—For the reconstruction of Plain Bridge, in the parish of Marden, and of Pikefish Bridge in the parish of Yalding, for the Maidstone Rural District Council. Mr. T. A. Busbridge, Surveyor:—

Plain Bridge, Marden.

R. Corben & Son £182 0
S. F. Stanley & Sons, Marden* 119 10

Pikefish Bridge, Yalding.

R. Corben & Son £209 0
Barden & Head, Union-street, Maidstone*... 196 0

KINGUSSIE.—The following tenders have been accepted for additions, etc., to the parish church. Mr. P. Macgregor Campbell, architect, Glasgow:—
Mason, J. S. Macpherson, Kingussie; joiner, D. Fraser, Kingussie; slater, J. Reid, Inverness; plumber, Anderson, Ltd., Glasgow; painter, J. Tulloch, Inverness; heating, Taylor & Fraser, Glasgow.
[Approximate total amount of tenders, £1,000.]

LIVERPOOL.—Erection of labourers' dwellings on Sparling-street area, for the Corporation:—
B. Costain & Son* £6,900

LEEDS.—For extension of meat markets, slaughter-houses, lairage, etc., in New York-street, for the Leeds City Council. Mr. W. S. Braithwaite, Architect, 6, South-parade, Leeds. Quantities by Architect:—
J. T. Wright, Skinner-lane, Leeds*..... £18,700‡
‡ Whole of works.

LIVERPOOL.—Erection of labourers' dwellings on Gore-street and Jordan-street areas, for the Liverpool Corporation:—
W. Hall & Son, Ltd.* £17,953

LONDON.—For building works in connection with the rearrangement of tramways sub-stations and sub-station plant, for the London County Council:—

C. Wall, Ltd.	£2,918 0 0
G. Godson & Sons	2,852 0 0
J. & C. Bowyer, Ltd.	2,730 0 0
Markham & Markham	2,561 0 0
A. Roberts & Co., Ltd.	2,521 10 4
J. Marsland & Sons, Walworth, S.E.*	2,436 14 0

[Architect's estimate, £2,648.]

LONDON.—Laying of stoneware cable ducts, etc., for the London County Council:—

May, Mortimer, & Co., Ltd.	£5,971 3 8
W. Griffiths & Co., Ltd.	2,555 11 2
Foote & Milne, Ltd., Victoria-street, S.W.*	2,268 7 8

LONDON.—Supply of 240,000 creosoted deal paving blocks, 3 in. by 9 in. by 5 in., required in connection with the reconstruction of the lines in Seven Sisters-road, for the London County Council:—

	Per 1,000.
Millars' Timber & Trading Co., Ltd.,	£11 2 6
T. Gabriel, Sons, & Burtons	11 0 0
Burt, Boulton, & Haywood, Ltd.	10 17 6
Improved Wood Paving Co., Ltd.	10 17 0
W. W. Howard Bros. & Co.	10 15 0
Acme Flooring & Paving Co. (19 4), Ltd., Victoria-park, E.*	10 13 9

LONDON.—Repair of carriageway of Hammersmith Bridge, for the London County Council:—

G. Wimpey & Co.	£1,898 13 4
W. Griffiths & Co., Ltd.	1,720 18 8
J. Mowlem & Co., Ltd.	1,709 9 4
The Improved Wood Pavement Co., Ltd.	1,663 12 0
The Acme Flooring & Paving Co. (1904), Ltd., Victoria Park, N.E.*	1,606 5 4

LONDON.—Erection of building works in connection with the adaptation of Stamford-hill premises for stores, for the London County Council:—

Higgs & Hill, Ltd.	£2,992	Marchant, Hirst, & Co.	£2,387
A. Monk	2,714	W. Downs	2,370
Rowley Bros.	2,666	Griggs & Son	2,320
Triggs & Co.	2,575	Lole & Co.	2,275
G. Godson & Sons	2,497	J. C. Mather, 38, Northampton-st., Islington, N.*	2,257
C. P. Roberts & Co.	2,476	J. & C. Bowyer, Ltd.	2,176
Brand, Pettit, & Co.	2,459	A. Roberts & Co., Ltd.	2,140
McCormick & Sons, Ltd.	2,398		
Stevens & Sons	2,393		
H. L. Holloway	2,390		

LONDON.—Six new cast-iron plungers for the vertical sludge pumping engines at the Northern Outfall, for the London County Council:—

Clayton, Goodfellow, & Co.	£175 0
Hathorn, Davey, & Co., Ltd.	136 10
Seagers, Ltd.	120 0
J. Cochrane, Barrhead*	111 0

LONDON.—Installation of four induced draught fans at Greenwich Generating Station, for the London County Council:—
Davidson & Co., New Broad-street, E.C.* £4,898 10

LONDON.—Provision of heating apparatus at Stamford-hill Stores, for the London County Council:—

Mather & Platt, Ltd.	£658 4 5
G. Mills & Co., Ltd.	656 0 0
Newton Fire Extinguisher Co., Ltd.	606 10 0
J. Spencer, Ltd., 16, Dowgate-hill, E.C.*	549 16 6

LUDHAM.—Erection of bridge, for the Norfolk County Council:—
T. H. Blyth & Sons, Foulsham* £1,595

NORTHAMPTON.—Improvements at the Secondary School for Girls, for the Corporation:—

Seaton & Peet	£918 19 4
S. Booth Horrocks	818 0 0
J. T. Lowke & Sons*	800 0 0

NUNEATON.—For erection of a children's home, for the Board of Guardians. Mr. E. E. Shepherd, architect, Nuneaton. Quantities by architect:—

E. Dent	£1,487 12 3
J. Dallow & Sons	1,344 0 0
G. Smith & Sons	1,330 0 0
T. Smith & Sons	1,299 0 0
A. Bedingham	1,260 0 0
E. A. Whitaker	1,235 13 0
G. Wincott, Nuneaton*	1,234 0 0
T. Hickman & Sons	1,231 0 0
Smith & Bunning	1,229 0 0
H. Williams	1,227 0 0
Vickers & Sons	1,172 0 0

RHYDYBEILLEN.—Erection of bridge at Rhydybeillen, near Synod Inn, for the Cardiganshire Main Roads Committee:—
Houghborough* £797 3 6

ROMFORD.—For street improvement works at Balgores-lane, for the Urban District Council:—
Parlby & Bescoby, Romford* £1,313 16 6

SHEFFIELD.—For covering River Sheaf and other works in connection with the scheme for widening Exchange-street, for the Corporation:—
Wellerman Bros., Ltd. £8,378 14 2

SHEFFIELD.—Extensions of Lodge Moor Hospital, for the Corporation:—
T. Roper & Sons, Ltd.* £63,512 13 3

SOUTH MIMMS.—Erection of twelve workmen's cottages, for the Rural District Council:—

J. T. Bushell	£3,198 0	W. Byford	£2,748 0
S. Worboys	2,940 0	Williams & Sons	2,640 0
Willmott & Sons	2,880 0	W. Slough	2,630 0
Payne Bros.	2,793 0	W. Simmons, Wood Green*	2,520 10
Pilgrim & Sons	2,760 0		

TILBURY.—For erection of 150 houses, for the Tilbury Urban District Council:—
Brown Bros.‡ £26,218
‡ Recommended for acceptance.

TOTTENHAM.—For wood-paving of Turnpike-lane, for the Urban District Council:—
W. Griffiths & Co., Ltd.* £870 15 9

TOWCESTER.—For supply of water to Stoke, for the Towcester Board of Guardians:—
W. Smart ..... £124 0 | H. Skeers, Roade* £109 10

WALTHAMSTOW.—For the erection of boundary walling and fencing around the Billet-road site, for the Education Committee. Mr. H. Prosser, M.S.A., Architect to the Committee:—

		Extra for brick-work in cement.
W. J. Maddison	£1,379	£39
Webb & Co.	1,375	40
F. J. Coxhead	1,333	40
A. G. Barton	1,317	30
J. S. Hammond, Sons, & Co.	1,296	45
T. B. Lever & Son	1,295	50
J. Sands	1,216	20
J. & J. Dean, Walthamstow*	998	20*

WORTHING.—For sewage disposal works, for the Urban District Council:—
F. Sandell & Sons* £1,550

YEOVIL.—Laying sewers at Martock, for the Yeovil Rural District Council:—
Yandle & Sons, Martock* £307 17 4

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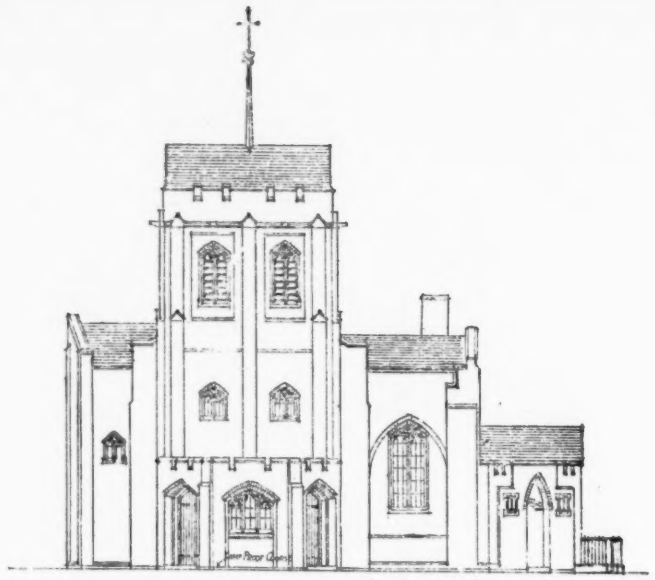
ENGLISH CHURCH:
BUCAREST, ROUMANIA.
Elevation of East End.

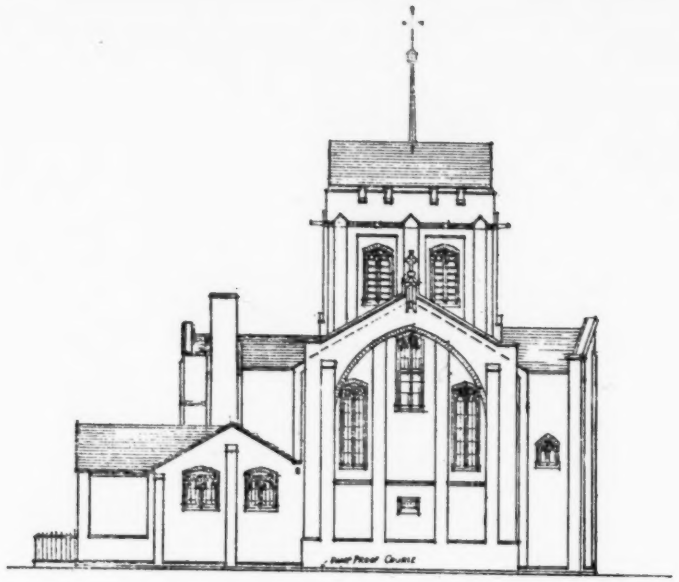
ENGLISH CHURCH, BUCAREST.—Professor Beresford Pite, F.R.I.B.A., Architect.

ENGLISH CHURCH, BUCAREST.—Professor Beresford Pite, F.R.I.B.A., Architect.



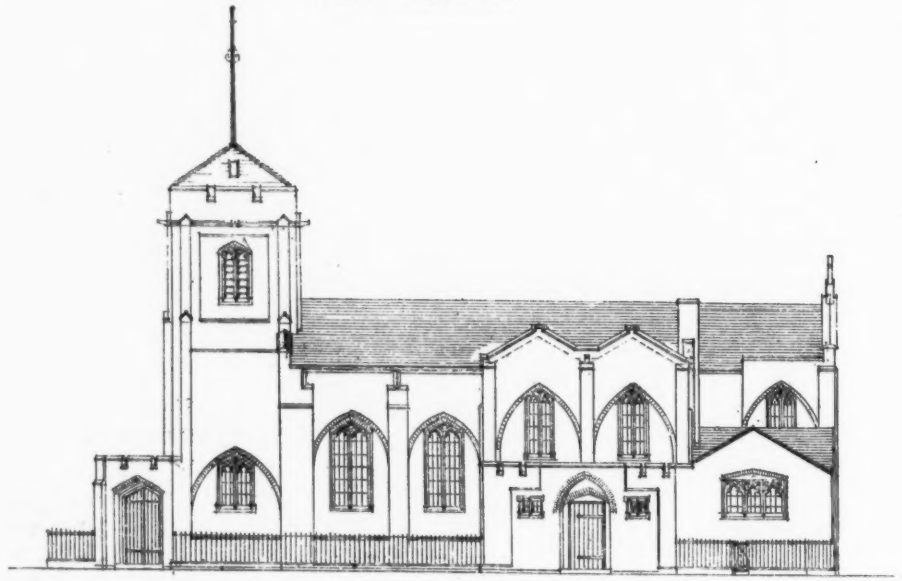
Note Boundary wall not shown

WEST ELEVATION.

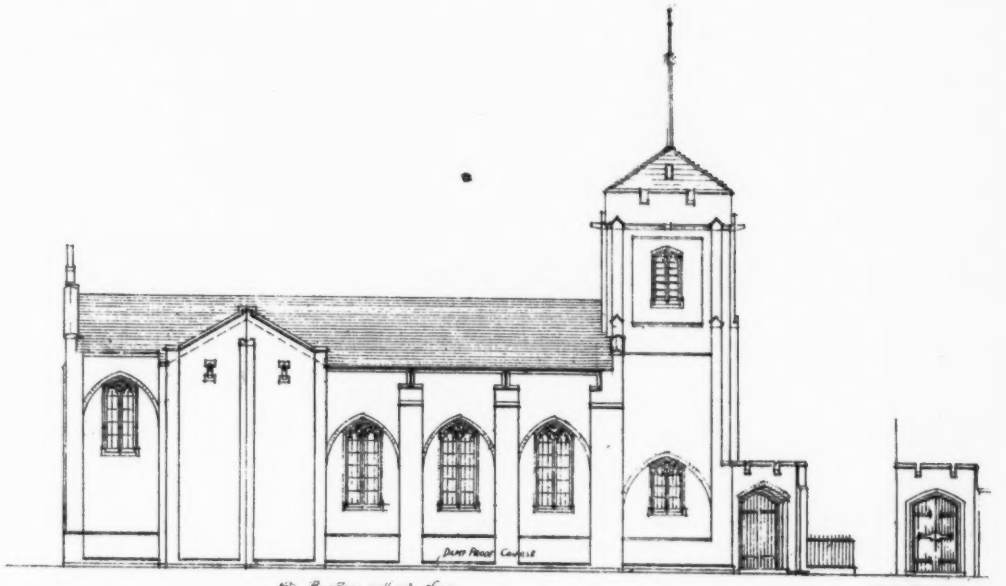


Note Boundary wall not shown

EAST ELEVATION.



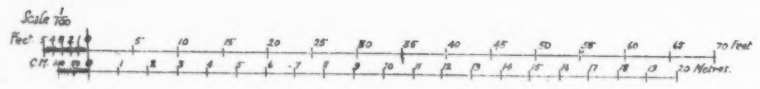
SOUTH ELEVATION.



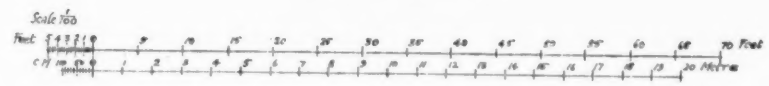
Note Boundary wall not shown.

TRUE ELEVATION OF SIDE OF THE PORCH

NORTH ELEVATION.



BERESFORD PITE F.R.I.B.A.
2 YORK GATE LONDON
SEPTEMBER



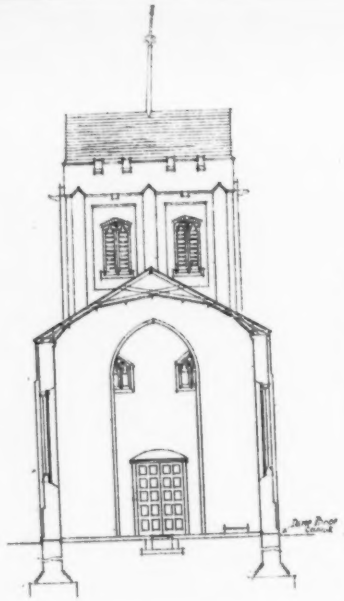
BERESFORD PITE F.R.I.B.A.
2 YORK GATE LONDON N.W.
SEPTEMBER 1913

ENGLISH CHURCH, BUCAREST.—PROFESSOR BERESFORD PITE, F.R.I.B.A., ARCHITECT.

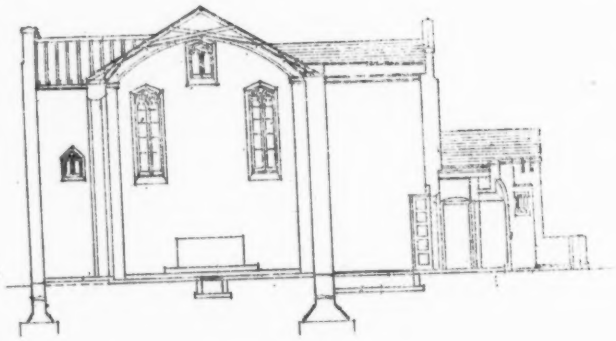
ENGLISH CHURCH, BUCAREST.—Professor Beresford Pite, F.R.I.B.A., Architect.

REIMS CATHEDRAL: INTERIOR LOOKING EAST.

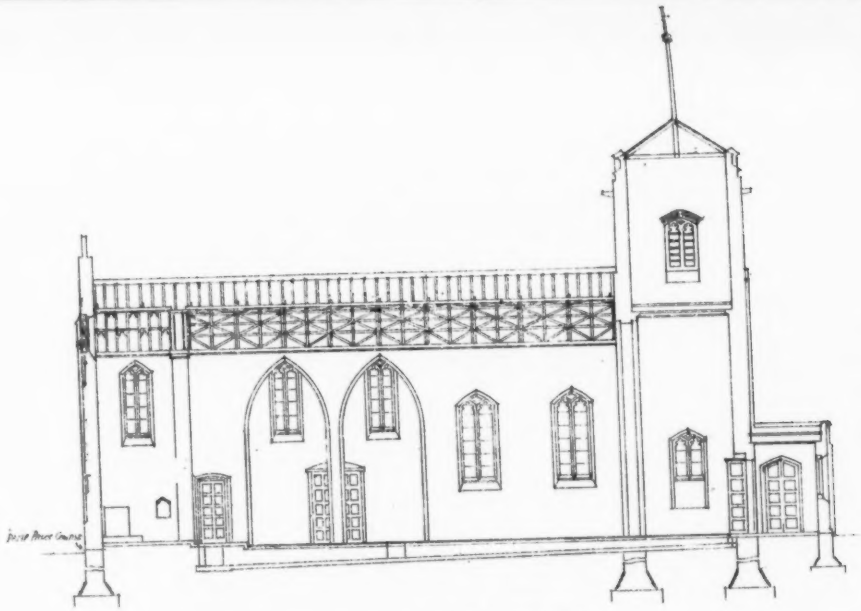
BEAUVAIS CATHEDRAL: INTERIOR LOOKING EAST.



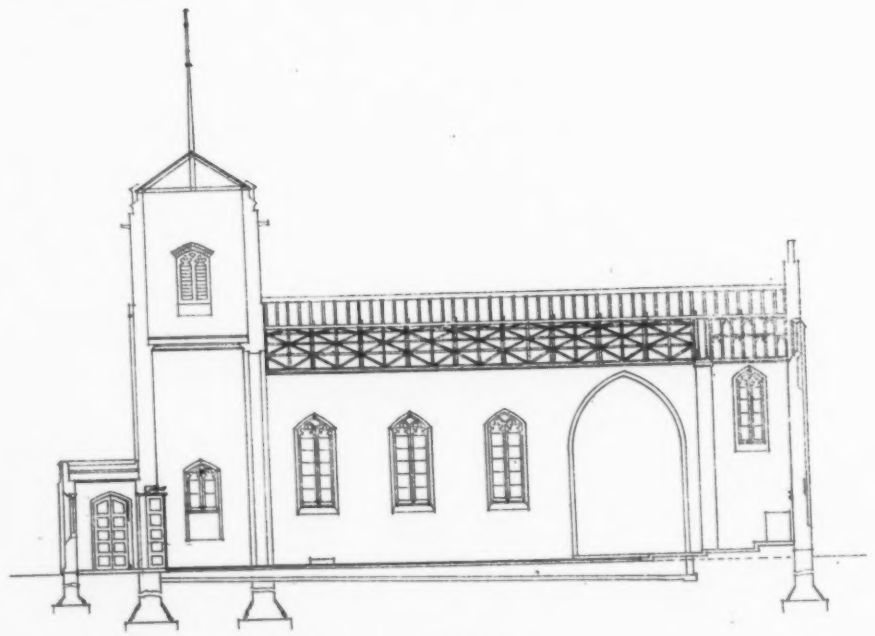
CROSS SECTION A-A.



CROSS SECTION B-B.

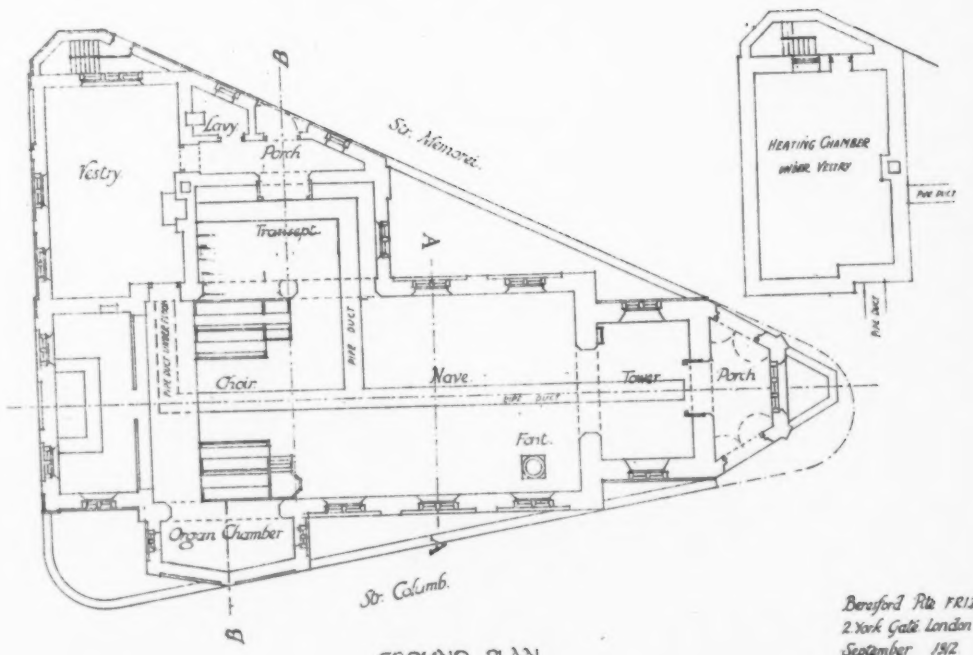


SECTION LOOKING SOUTH.



SECTION looking NORTH.

Beresford Pite, F.R.I.B.A.
2 York Gate, London, N.W.
SEPTEMBER 1912.

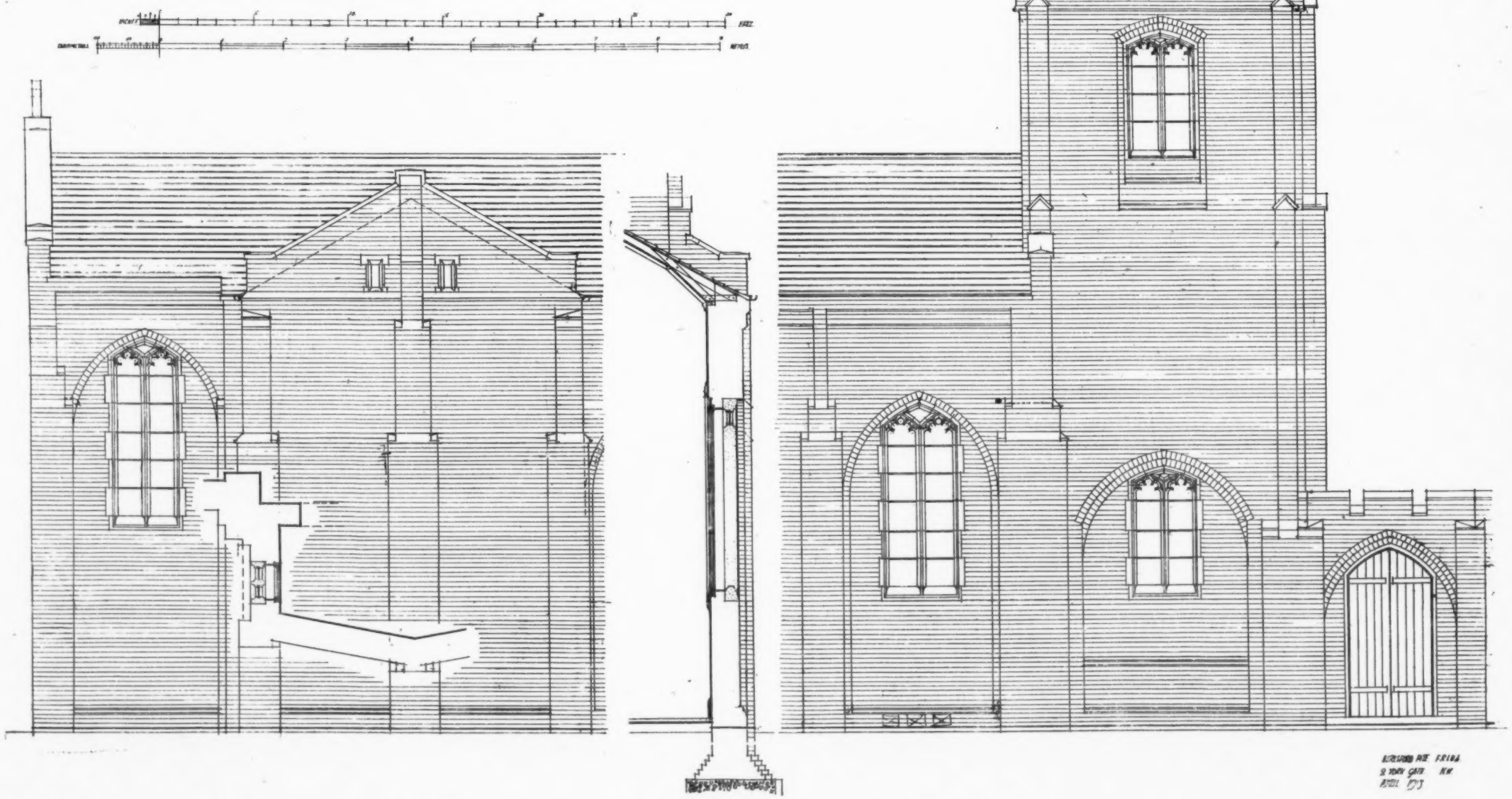


GROUND PLAN.

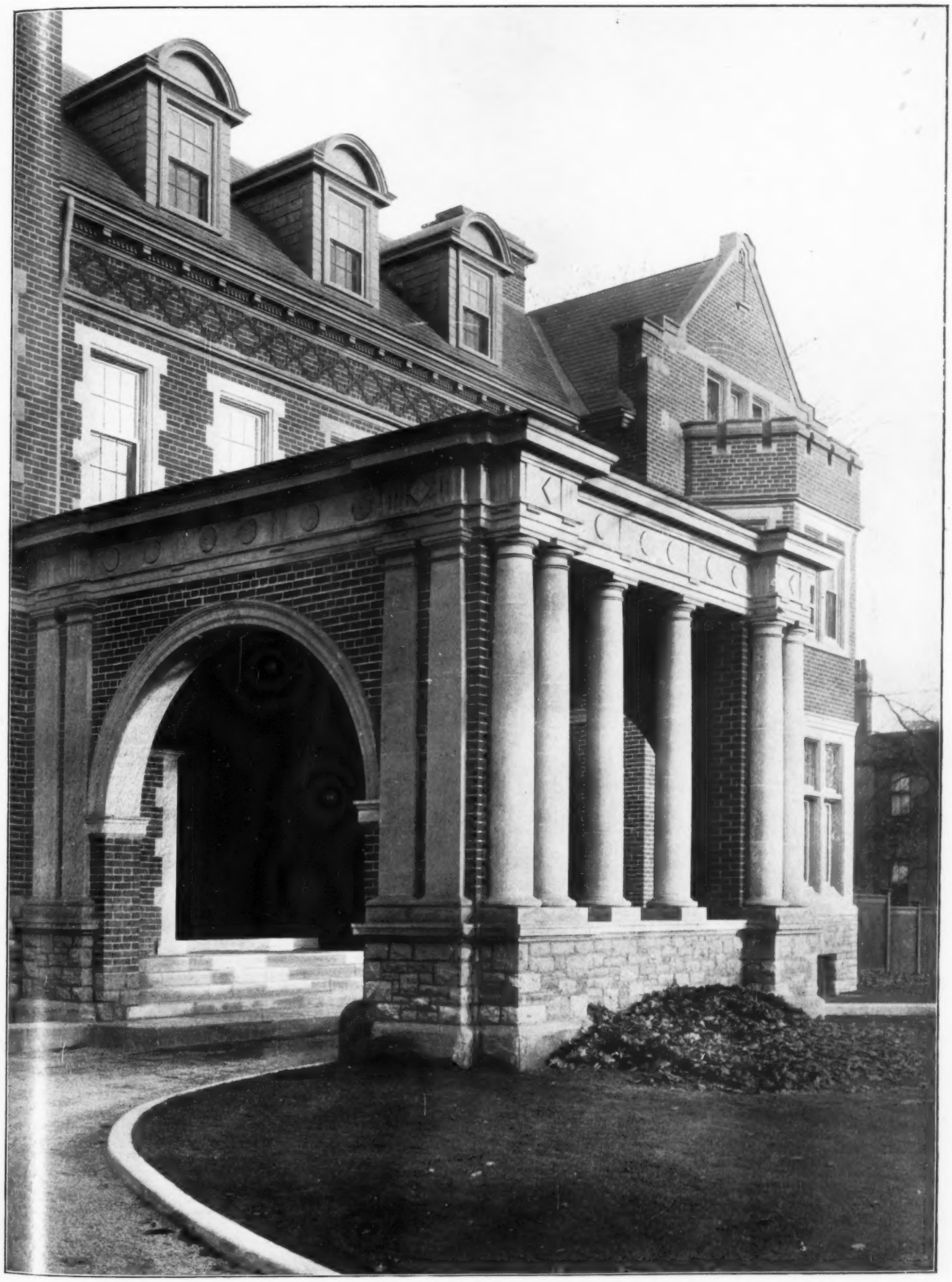
Beresford Pite F.R.I.B.A.
2 York Gate London N.W.
September 1912.

ENGLISH CHURCH, BUCAREST.—Professor Beresford Pite, F.R.I.B.A., Architect.

ENGLISH CHURCH.
BUCAREST, ROUMANIA.
Elevation to Str. Columb.



ENGLISH CHURCH, BUCAREST.—Professor Beresford Pite, F.R.I.B.A, Architect.



RESIDENCE IN QUEEN'S PARK, TORONTO.—Messrs. Darling & Pearson, Architects.